

**Project: “SCDOR IT improvement roadmap.
Using Microsoft Operations Framework to get there.”
South Carolina Department of Revenue**

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March 12, 2008

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Introduction

SCDOR key result number 3 is "Effective & Efficient Agency & Enterprise Services. The time spent on just the maintenance (care and feeding) of the average IT infrastructure is 70% of a technical person's job. This leaves only 30% for research of new technologies and inclusion in new projects (outside of our area). The amount of business services the Infrastructure team now delivers has exploded over the last 4 years yet the amount of personnel managing this area remains the same. By being able to measure and understand "where we are now", "where we want to be", "how are we going to get there" and "how will we know when we arrive" will help us in being able to better provide SCDOR key result number 3. This is to be a "continuous" process improvement following industry best practices and standards for IT operations in a Microsoft environment. Not just a onetime shot.

The methods used to maintain and provide technology services to SCDOR by our internal infrastructure team to meet business needs have not been measured or compared to business best practices since I've been here. At times within the infrastructure team there is a feeling of being "overwhelmed" with the amount of applications, products, installation and delivery of technical services. Is this "feeling" real or just a product of the way we do business (infrastructure area) internally?

Problem Statement:

The Network Infrastructure at SCDOR today is the most complex it has ever been. Managers in every division can now access executive information systems, data warehouses, and corporate intranets for mission-critical decisions. Tax documents are scanned, imaged and stored on replicated storage units. A data warehouse provides taxpayer lifestyle information versus tax payments. Employees, Contractors and Temporary hires do most office-related work on computers. With the growth of the Internet and the

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proliferation of web applications SCDOR has made available free to the public 24 hours a day, 7 days per week, taxpayers, government officials, other agencies, anybody can have and may demanded access to various systems or internal resources. We also have hundreds of applications, 100 printers, 570 plus Desktops, 300 plus Laptops, over 870 internal users to keep up with. SCDOR has been moving from a mixed Netware and Microsoft environment to a total Microsoft environment for the past 3 years. That is the reason I have chosen to use Microsoft Operations Framework and Infrastructure Optimization Model to find out where we are now. The solutions provided should naturally fit the Microsoft environment and SCDOR won't have to reinvent the technology wheel looking for solutions.

What is MOF? MOF Continuous Improvement Roadmap is based on the best practice guidance contained in MOF version 3 and the IT Infrastructure Library (ITIL). It has three distinct components:

1. MOF Service Management Assessment - is focused on enhancing the performance of people, IT service management processes, and enabling technologies in the context of improved business value. A detailed service improvement roadmap is provided, supported by specific key performance indicators to monitor progress as improvements are implemented.
2. MOF Service Improvement Program (SIP) - guidance is split into two major areas of focus: specific MOF/ITIL process improvement and generic SIP guidance. This guidance is delivered through a tool that assists users in identifying their specific pain points and provides focused guidance for remediation. This guidance is supported by key performance indicators to measure process improvement.
3. MOF Service Management Guidance - is available through a variety of guidance documents and MOF model descriptions, which link specific Service Management Functions within their operational context.

Data Collection:

1. Identify one of our crucial IT service-related problems using the MOF assessment tool.
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2. Determine what our pain points are today and where to begin to focus on solutions using the IOM self-assessment tool.
3. How many personnel, amount and type of applications supported versus other IT shops. Outside independent reports and internal sources, call tickets, application counts.
4. How much time is really spent on maintenance? Call tickets, conversations with technicians.
5. Define the term maintenance from a SCDOR perspective. Question team members and stakeholders. http://en.wikipedia.org/wiki/Preventive_maintenance
6. Determine how many applications we support. Question team members and stakeholders.
7. Determine what kind of applications we support. Software utilities, question team members, in house and external developers.

Operational Definitions of Critical Terms

MOF – Microsoft Operations Framework is a Continuous Improvement Roadmap is a vehicle for helping to break the cycle of unrealized improvement goals by making continuous improvement of IT services more actionable and achievable.

IOM - Infrastructure Optimization Model serves as a gauge for IT organizations and provides a logical roadmap to progress from reactive to proactive IT service management.

HEAT – help desk and request tracking software

Application software - is a subclass of computer software that employs the capabilities of a computer directly and thoroughly to a task that the user wishes to perform. This should be contrasted with system software which is involved in integrating a computer's various capabilities, but typically does not directly apply them in the performance of tasks that benefit the user. In this context the term application refers to both the *application software* and its implementation. http://en.wikipedia.org/wiki/Application_software

MS = Microsoft

TAM = Technical Account Manager

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ITIL - Information Technology Infrastructure Library is a set of concepts and techniques for managing information technology (IT) infrastructure, development, and operations.

Data Analysis:

Before running off and just running the MOF tool I called our Microsoft Technical Account Manager (Jamie) and she forwarded me information about classes, consulting help and got me in contact with Jason Osborne, a Program Manager for Microsoft Operations Framework. After my hour long discussion with Jason I was beginning to feel overwhelmed with the amount and complexity of the information he was giving, the questions he was asking and the fact they were changing MOF from version 3 to 4. Jason informed me that the reason for the change was a large percentage of people like me who were interested in measuring and understanding how to improve and better provide the services demanded of them found MOF to be complicated, expensive, full time job and possibly non achievable. Jason mentioned that after taking the MOF assessment I needed to look into taking the IOM assessment. He said that MOF can help provide operational guidance that will enable SCDOR to achieve mission-critical system reliability, availability, supportability, and manageability over time. While the Infrastructure Optimization Model (IOM) describes the technologies and key steps that SCDOR can use to move forward, MOF explains the people and processes required to improve an IT infrastructure. Together, the IOM and MOF provide a complete model and guidance for IT professionals to use in process improvement and optimization efforts. The IOM assessment questions really would help to focus me.

One of the email's Jamie sent me was for a 3 day workshop on MOF. After calling around I found out the workshop is not in demand so there are no scheduled classes but she would alert me if one became available. She offered to get a private workshop on site for \$20,000. I asked her pricing on an onsite MOF assessment. This is when a MS consultant comes in and starts the assessment by identifying and reviewing the current processes and documentation. The problem at this point was the \$25,000 plus minimum price tag. I knew with existing budget issues and other higher priority projects I wasn't going

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to be able to convince my CIO that it is worth spending \$20,000 plus to find out where we can improve our service delivery. What I am hoping for is that after using these tools, gathering and understanding the data, involving team members and stakeholders and writing this paper we might be able to move towards the funding needed to really provide an in depth analysis of where our processes can be improved, pain points eliminated or at least understood .

I decided to take the assessment with a service and not an operational issue in mind. Here is the Assessment Tool with the questions and my answers. Here is the MOF tool problem summary and recommendations. After running the MOF assessment tool, reading the problem assessment and recommendations it was apparent that Jason was right I needed to go farther. The information provided me with little if any useful information. As I read over the material I wasn't sure if I was going to be able to move in the direction of "where are we now?" One of the links (in Bright green) on the recommendations page was to a link to the Microsoft site on Infrastructure Optimization Assessment. I remembered Jason talking about this and followed the link. As I looked over the material I began to feel a little better and felt this was an excellent place to find out "where we are now" compared to other businesses.

The IOM assessment has 60 questions about Identity and Access Management, Desktop, Device, and Server Management, Security and Networking, Data Protection and Recovery and IT and Security Process. The IOM also has a more comprehensive assessment of 158 questions. The comprehensive assessment goes into areas that are not relevant for this paper, but we have scheduled Microsoft for February 12th to come in and go over the entire 158 questions with us. I scheduled meetings with my internal team and knowledgeable stakeholders to help answer the IOM assessment questions. I wanted to make sure we could discuss and agree on what we all felt were valid answers for SCDOR. At first the questions seemed straight forward and you could answer pretty easily. But as we talked about each question and really understood what was being asked it provoked good and sometimes spirited talks on how to best answer it. After taking the assessment our current maturity level in each of the five areas was

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established, the next step is to use the model to develop a plan on how to progress through each maturity level in order to reach the target level needed to improve that process. The following chart shows the four maturity levels and their meanings are explained below:

Basic: “We Fight Fires” The Basic IT infrastructure is characterized by manual, localized processes and minimal central control, as well as nonexistent or unenforced IT policies and standards for security, backup, image management, and deployment, compliance, and other common IT practices.

Standardized: “We’re Gaining Control” The Standardized infrastructure introduces controls through the use of standards and policies to manage desktops and servers; how machines are introduced to the network; and the use of Active Directory services to manage resources, security policies, and access control.

Rationalized: “We Enable Business” The Rationalized infrastructure exists where the costs involved in managing desktops and servers are at their lowest, and processes and policies have matured to play a large role in supporting and expanding the business. Security is proactive with rapid response to threats.

Dynamic: “We’re a Strategic Asset” The Dynamic infrastructure provides strategic value that helps the organization run its business efficiently and

competitively. Costs are fully controlled. Integration and collaboration between users is pervasive, and mobile users have high levels of service and capabilities.



Below is a chart with the results. The five areas are highlighted in yellow

Core Infrastructure Optimization Assessment Results				
	Basic	Standardized	Rationalized	Dynamic
Identity and Access Management		X		
Desktop, Device, and Server Management	X			
Security and Networking		X		
Data Protection and Recovery	X			

SCDOR Summary:

IT professionals who manage a Basic infrastructure find their environments extremely hard to control, have very high desktop and server management costs, are generally very reactive to security threats, and have very little positive impact on the ability of the business to benefit from IT.

Summary: Identity and Access Management

Your Standardized organization may have a unified directory service, but you do not have the means of enforcing IT policies across the organization. Our recommendation is to deploy tools and procedures for IT policy enforcement and configuration management.

Summary: Desktop, Device, and Server Management

Your environment appears characterized by a limited infrastructure with few or no IT policies and no desktop standards. Our recommendation is to deploy tools and procedures to manage desktop configuration and updates, operating system diversity, and operating system refresh lifecycles.

Summary: Security and Networking

Your Standardized environment needs tools and procedures to ensure stronger security, network access, and the performance monitoring of your organization's IT environment. We recommend

implementing host-based firewall technology on desktops and servers, enabling more secure remote

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access to network applications, implementing monitoring and wireless technologies, as well as optimizing data flow to branch offices.

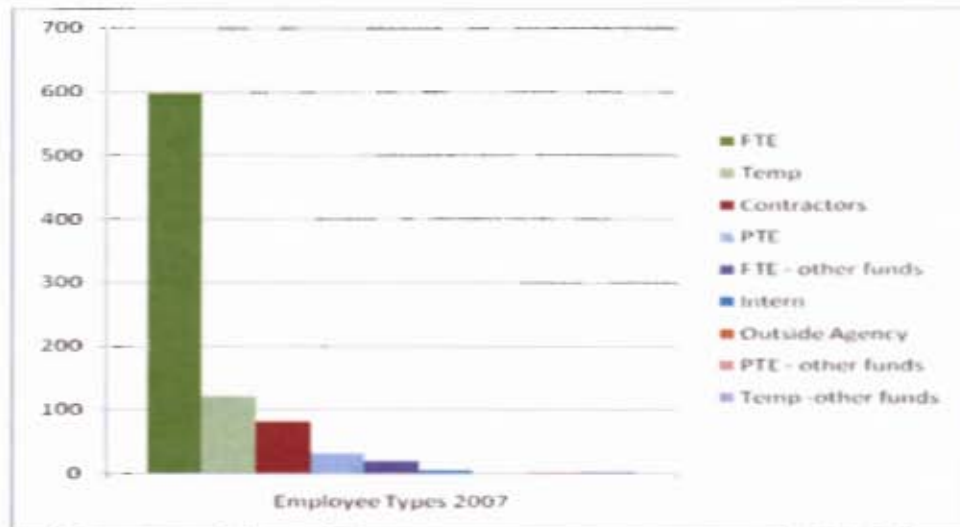
Summary: Data Protection and Recovery

A Standardized environment needs tools and procedures to manage backup and recovery of data, as well as service level agreement compliance. Our recommendation is to define Standardized backup/restore services with service level agreements and to implement tools and procedures for central management of branch office data backup, ensuring that backup/restore processes work on all critical servers.

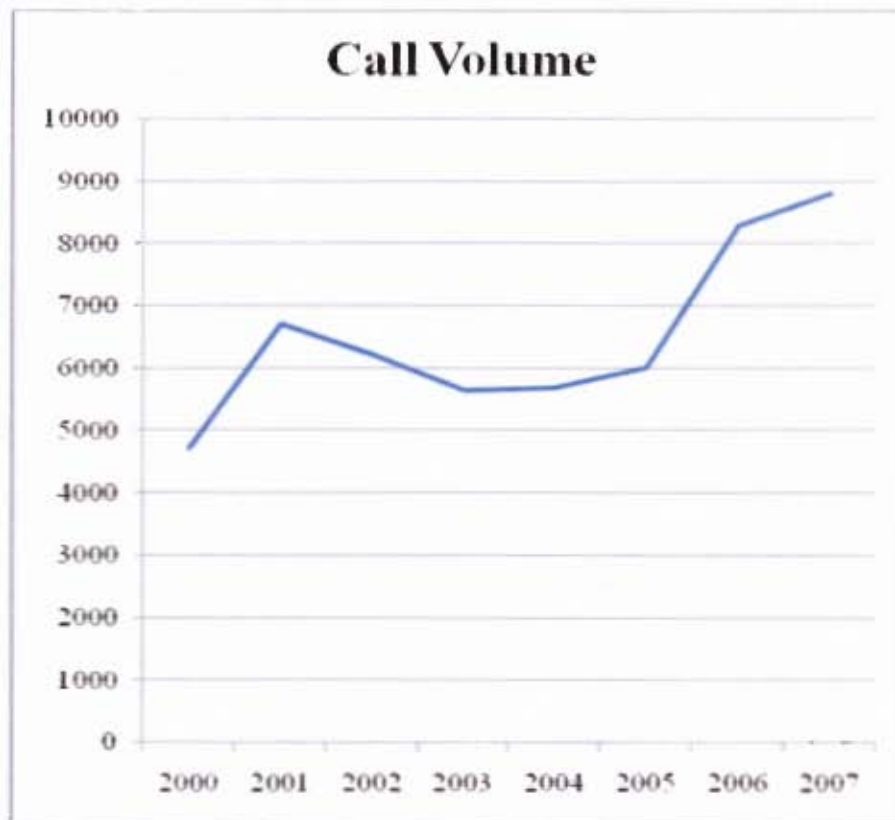
Below are SCDOR results in comparison to other industries.

Core Infrastructure Optimization by Industry:				
Government				
	Basic	Standardized	Rationalized	Dynamic
Technology	87.00%	12.50%	0.60%	0.00%
IT Security	83.70%	7.90%	6.70%	1.70%
Education				
	Basic	Standardized	Rationalized	Dynamic
Technology	93.20%	6.80%	0.00%	0.00%
IT Security	56.80%	4.10%	39.20%	0.00%
Retail				
	Basic	Standardized	Rationalized	Dynamic
Technology	79.70%	20.30%	0.00%	0.00%
IT Security	89.80%	6.60%	3.00%	0.50%
Financial Services				
	Basic	Standardized	Rationalized	Dynamic
Technology	73.00%	25.80%	0.80%	0.50%
IT Security	79.20%	13.70%	5.50%	1.60%

At this time SCDOR has the following amount and types of employees:



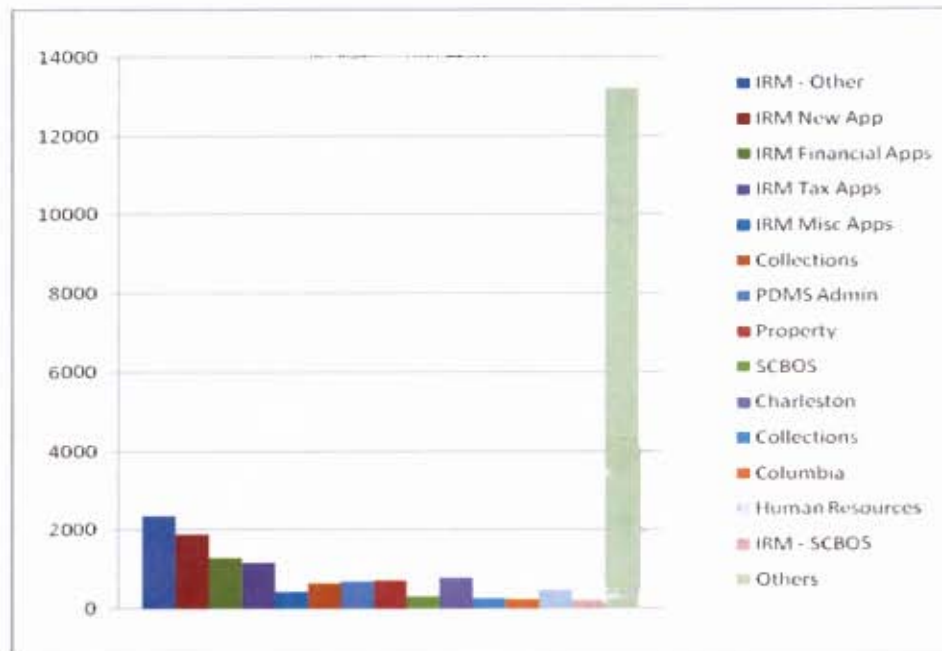
Helpdesk call volume from 1/1/2000 - 12/2007. For any technical questions, issues, migrations, user accounts, directory rights, application installs, updates, packaging, migrations, infrastructure problems, equipment purchases, moves, repairs, phones, etc... a Heat ticket is generated and logged as a call.



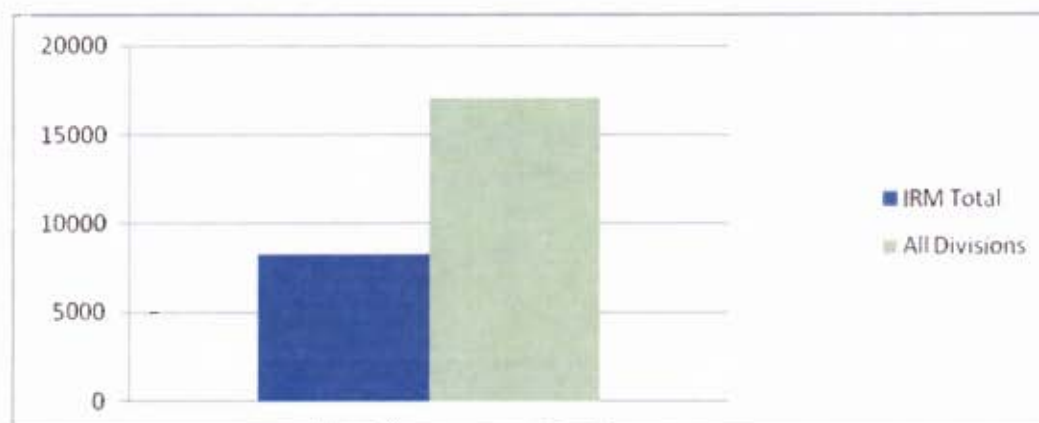
Total calls to the Helpdesk from the top 15 divisions 2004 – 2007

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IRM division total call comparison to all other SCDOR divisions from 2004 - 2007



As you can see the Information Resource Management (IRM) division has 8,288 calls out of 17,022. This means IRM the technology side of SCDOR generate 48.5% of all Heat tickets at SCDOR.

What are some of the changes or factors that have made our services provided more complex?

1. **Our customer or end user base** has changed from an IT perspective. It used to be an internal employee of DOR only, but now it's also taxpayers, other agencies and external non-DOR personnel via the internet needing access to internal resources. An influx of 80 plus Contractors

for the SCITS project who demand dual screens, untested application downloads, development

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environments, off-site access, moves, changes, adds at the last minute, has created an environment in which development is now considered production critical. Why? Because of the contract personnel costs of \$65.00 and up per hour and idle hands cost. This has heightened the level of stress because now “everything is critical”. Also the creation of a typical user account now involves a minimum of 5 people from Operations and Support.

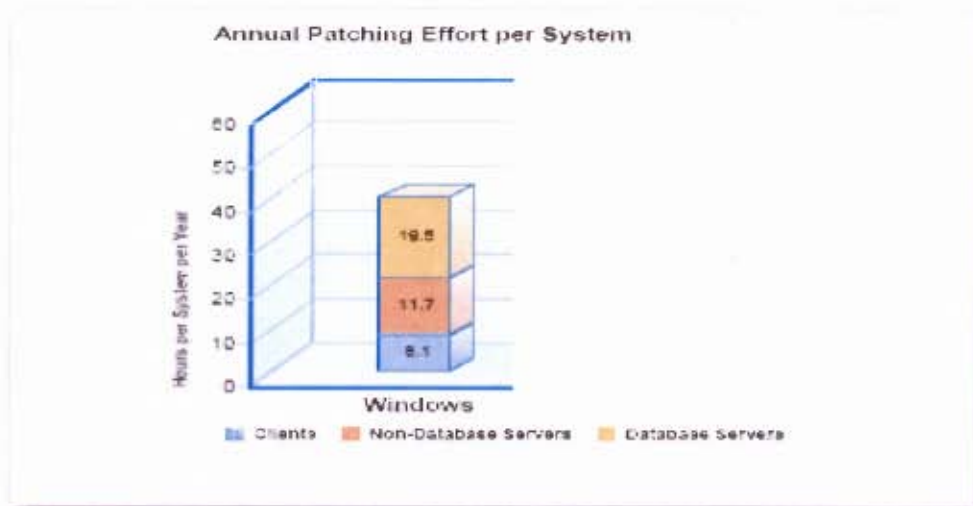
2. **Applications** - Because of the sheer number and amount of applications we now support, time spent on the installation, configuration, updates, and maintenance can take a good amount of time. Let alone the fact that we are also called to be the “experts”. Even though we might not even use the application, we just installed it. Most of the supervisors aren’t sure or don’t even know what application a new employee needs to be productive the first day. They will tell us to give them “whatever Susie has”. Of course that is not good from a security or licensing stand point. The following table shows some of the applications used / installed on computers throughout SCDOR.

Total number of Applications and Versions on SCDOR computers scanned via SMS 7065	Total SCDOR in house developed <u>Internet</u> Applications
Applications listed by Vendor name 1200+	Total number of Applications pushed out via SMS 46

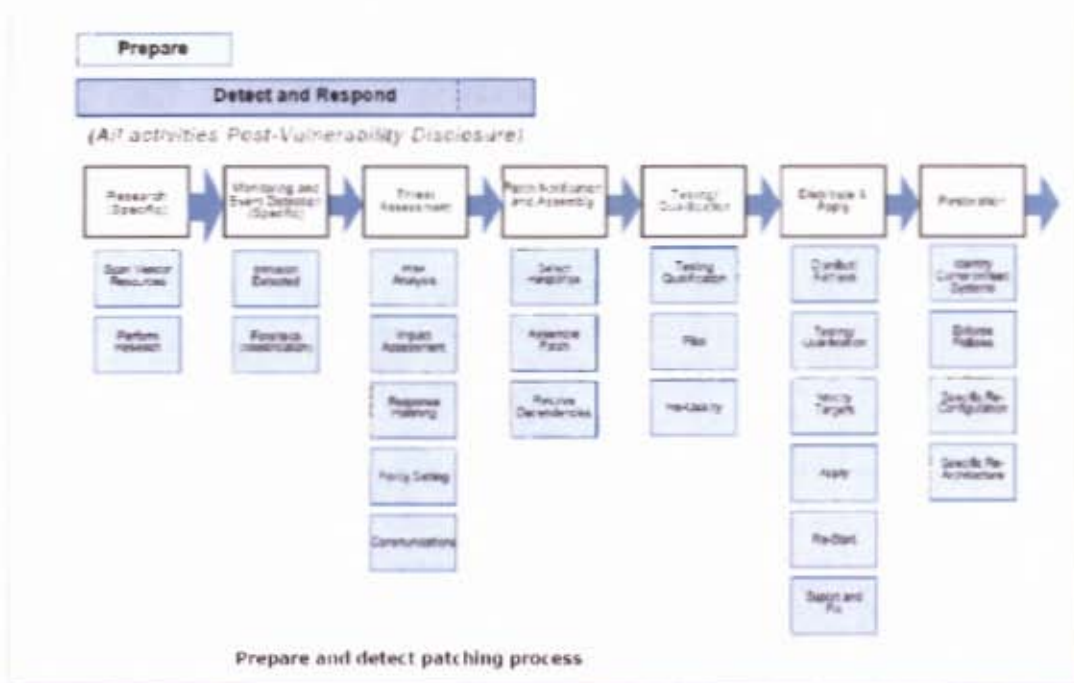
3. **Having two Directory Services.** Directory services are a centralized and standardized system that automates network management of user data, security and distributed resources and enables interoperation with other directories. SCDOR’s first network used and still does Novell’s Directory Services (NDS). Approximately 3 years ago we also integrated Microsoft’s Active Directory. The two directories User ID’s and password’s stay synchronized via a Novell product made for that purpose. The biggest issue’s here is having the knowledge to use both sets of administrative tools, understand directory rights, and user creation. Other issues are the cost of

maintenance for two directories, additional time, and added software needed on client machines to authenticate to both directories.

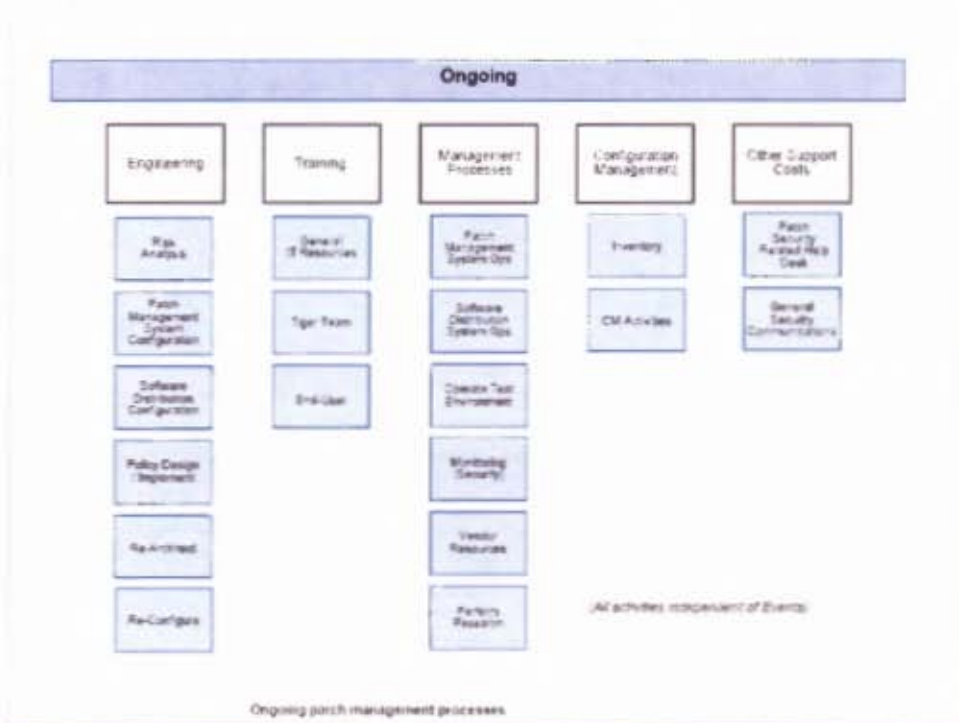
4. **The Internet** also brings with it constant security threats Viruses, Spyware, possible data compromise, password hijacking and time wasted by personnel “surfing” the Web. These threats must be aggressively addressed on a daily basis by various methods. Anti-Virus, Malware, Spyware, Spam software, hardware and software Firewalls, Monthly Security updates, Firmware updates, Intrusion detection systems, etc... All of these must be purchased, installed, tuned, monitored, updated and reports gathered for management. For instance Microsoft Security updates just for Microsoft products happen every month on the second Tuesday, this is called Patch Tuesday. It is perhaps the most anticipated and feared day of the month for our network administrators and security manager. Do we patch? Don't we patch? What will break? These patches or fixes are to repair some type of software vulnerability that has been found and must be installed since the previous month's release. But we also dread it too, given the massive amount of work involved in rolling out a dozen or more patches to our 100 plus servers and hundreds of Laptop and Desktop's. The following Figure shows the average man hours per machine per year.



This next Figure shows what takes place every time new updates, patches, etc... come out for applications, Operating systems (Windows XP, Vista, Linux, etc...)



This figure shows the ongoing process of patch management



5. **Data Storage.** The amount of data, requirements and how to store, back up, access, who has rights to see it, change it, delete it has gone from approx 20 gigabytes in late 1999 to terabytes

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and has nowhere to go but up. The systems involved with this kind of storage are not the same as it was even six years ago. Instead of having hard drives inside of your server the drives are stored on external devices called SANS. SANS are primarily used in large scale, high performance enterprise storage operations. Equipment is relatively expensive, complicated and needs higher technical skills to administer.

6. **State and Federal regulations** and laws are consistently changing on how long, how to store, what to store, who can access data. Tax rate changes also mean rewriting or updating existing applications or even writing new ones.
7. **Application Development.** Development of in house applications must have different environments to develop these new applications or updates to existing ones. It takes three separate environments to move or migrate an application from development to production. These are continuing development, post production, integrated test and then production. Each one of these environments must match the production environment as close as possible. This means each one has 3 or more servers to maintain. Since moving development of SCBOS in house and the SCITS project (moving off of the Mainframe) we now have to maintain two other development environments.
8. **Systems** – Filenet, SharePoint, Exchange, Systems Management System, Borland Tool set, Virtual Center, LCS, CMS, Zytax, Bingo, E Work, Fax on Demand, Data warehouse
9. **Technology changes** – Anybody who follows the information technology industry can attest to the fact that the rate of new product developments is exponentially growing. Companies once went 6-12 months without new product announcements. Now, not only do companies introduce new products (or versions of their products) more often, but many more companies are involved.
10. **Remote users** – SCDOR provides access to internal resources as never before. But a rising trend is the idea that “everybody” will have access not just SCDOR employees. This opens up a huge new avenue of security risks. Users have Fast Cable modem or DSL Internet. Air cards on

auditor laptops are now used to also allow faster connections to internal resources for real time data.

11. **24 hours a day, 7 days per week** – We are now required to be on call and ready to respond to users issues.

Implementation Plan

After reviewing the results from the IOM assessment, it became obvious that we needed to focus on moving from a basic to standardized infrastructure. One area that I felt we can make headway on is image based deployment technology. We lease our computer equipment at this time and every two years do a rollout of new equipment. Six months before a new rollout we have to decide on a host of things that will be on the new image. Image what's that? The process is this; we acquire the newest desktop and laptop computer models we will be leasing. Ask all stakeholders what versions and patch levels of software they use or don't use anymore. Install the operating system, and all basic software (10-14 applications) that at least 80% of our customers use. Installation of each application requires a long setup process — files copies, component registrations, runtime installations, and installation of third-party dependencies — followed by additional configuration, preference setup, and customization. Most applications do not function properly on secured, locked-down desktops, forcing us to compromise security for application compatibility (every user is an administrative equivalent on there PC). Finally, interactions between shared components and different application versions frequently introduce errors when applications are installed, uninstalled, or upgraded. Also for each time we install another application, it requires extensive regression testing and deployment efforts before it can be used. Once the application is installed, users are tied to the computer it is running on. Another issue is the application licensing costs. If every machine has that application on it then it has to have a paid license. The people involved include everyone from Desktop, Infrastructure, Security, Training, and Stakeholders to create this image. We download this image then place it on a few other machines to have customer test their software to make sure it works. After about 4 - 5 weeks of this we finally can send the image to our

vendor. Click on this to see the 10 page Image Creation document. Every time we order a new computer, that new computer comes with our image on it. When someone gets a new computer we turn it on and do about 30 - 40 minutes of customization for the average user. After that they are ready to be productive.

If they have other applications that must be installed the process takes longer. One of the problems is the integration of the 10-14 products in the original image. If we can cut that number down we can get a more stable image, less time and cost up-front in the creation of the image, decrease the chance of having to make adjustments (fixes) to each computer because of some setting we missed. Also we have to update the image every month with MS updates, software updates, or other items. Of course if we don't put the products on our image then they have to be installed some other way. My staff and I met on 01/28/08 with Microsoft to have them give an overview of IO. This was to help my team understand where I am coming from, how this will help them and what I'm try to accomplish with MS IO.

A possible solution to this issue was to look into Application virtualization. At this time it is a very fluid and emerging technology but one worth looking into. The solutions we are going to look into are Microsoft Softgrid. The other is Thinstall. The reason we are looking into these two products is that we are heavily invested in both Microsoft and VMware. VMware just purchased Thinstall.

What is a Virtual application?

Application virtualization isolates an application and the files and settings it needs to run so that it does not interact with an underlying operating system, other applications and in some cases hardware. The virtualized application can reside on the desktop in a bubble or it can be streamed down from a server to a remote user on just about any device or to the local drive.

Why virtualize applications?

1. Virtual applications are isolated from one another and from the host device, allowing enterprise desktops to be locked down. The user does not have to be an administrator on the computer. This decreases the security risk.
2. Because virtual applications do not modify the base operating system state, broken devices can be swapped out with no impact on the end-user.
3. Applications are not installed on the PC, it also greatly increases application reliability because they no longer conflict with one another
4. Simpler, automated process for deploying, patching, updating, and removing applications
5. Applications that are not performing properly can be refreshed instantly.
6. Minimizing the number of applications in OS images this decreases image size and complexity and enables organizations to standardize and consolidate images, simplifying maintenance.

Why not virtualize applications?

1. Inability of a virtualized application to communicate with other applications, for example, if Excel is isolated virtually and the user attempts to click on a hyperlink to talk to Internet Explorer, it is unable to follow that link.
2. You mean we have to go back and repackage all the existing applications, remove the old ones and redeploy them virtually? The time needed to possibly repackage existing applications.
3. You can't virtualize applications like antivirus and the firewall because they can't be isolated. Some applications you just don't or can't virtualize.

Check out the following website <http://www.stream24-7.com> for a look at the future of application delivery called streaming.

Evaluation method

The following shows our action steps to be taken, timeframes, resources needed and first year costs and a scoring key in making a determination if this is a viable solution.

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Action Steps	SoftGrid	Thinstall	Personnel / Teams
Talk with vendor to present over view of Product	1/10/2008	1/28/2008	Infrastructure
Read Virtualization Features PDF (shown below)	2/5/2008	2/5/2008	Infrastructure
Acquire a quote from vendor	2/6/2008	1/30/2008	Bob
Acquire trial versions of each product	2/8/2008	2/4/2008	Bob
Install and configure product.	3/03/2008	2/28/2008	Infrastructure
Create 2 virtual applications to test	3/10/2008	2/29/2008	Infrastructure
Adobe Reader			
Full Shot			
Test and evaluate applications	3/11/2008	3/4/2008	Infrastructure / Training
Stakeholders to test application functionality	3/12/2008	3/11/2008	Stakeholders
Data Entry			
FSD			
IRM			
Resolve possible outstanding issues	3/14/2008	3/14/2008	Infrastructure
Discuss product limitations and successes.	3/12/2008	3/12/2008	All

Both Softgrid and Thinstall need to start with a clean PC to create the new application on. This is a PC which has just the Windows base OS installed and nothing else.

Thinstall:

The installation of Thinstall was very quick and easy. It took us approx 2 hours to do this entire process. You install the Thinstal product on a PC then make the installation directory sharable to anyone

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responsible for the creation of the virtual applications. Thinstal's Setup Capture application works by taking 2 snapshots for a PC's file system and registry before and after installation the target application. The Thinstall project is created using the differences between the two snapshots. After the snapshot is taken we run a build program that creates the application package. After that you can put the new virtual application out in a sharable area or copy it to the users PC. All the user then has to do is double click on the application icon and the application is up and running. In fact the whole application is the icon. It took less than 20 minutes to create our first virtual application Fullshot. After that we virtualized Adobe Reader version 8 in less than 25 minutes.

Thinstall is different from Softgrid in that it is "agentless". Softgrid requires management software on the client PC. Since there is no client needed with Thinstall applications can be used on any computer running Windows. In fact this would allow you to have applications run from a simple USB stick. Of course, this portability raises questions about controlling software use and licensing after deployment. At this time there is no centralized management of how to distribute the applications to users.

The purchase price and ongoing costs of Thinstal at this date are as follows using 1000 users:

Purchase price is \$35.00 per user	\$35,000.00
Application Packager (one time fee)	\$ 5,000.00
Yearly maintenance costs (\$7.00 per user)	\$ 7,000.00
Total 1st year investment	\$47,000.00
Approx second year costs	\$7000.00

Thinstal scoring key

Ease of use: (15%) 8

Determine how intuitive and user-friendly the solution is, keeping in mind who the intended user is.

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Administration & Management: (30%) 7

How easy or difficult it is to administer the solution on an ongoing basis.

Installation & Setup: (20%) 8

Rate the complexity and amount of time and effort required to get the solution up and running, relative to the implementation of solutions of similar size and functionality.

Support: (15%) 7

Rate the level of available customer support, be it in the form of documentation, online assistance, or live customer support.

Features & Value: (20%) 6

Overall value of the product in relation to similar products offering similar features and capabilities.

Overall score 36

SoftGrid:

The installation of Softgrid was far more complicated than Thinstal. To get a basic system up and running requires seven components:

- SoftGrid Sequencer (we'll discuss this component in The Art of Sequencing section)
- Microsoft System Center Virtual Application Server to maintain the packages
- SoftGrid Data Store to maintain application information
- SoftGrid Management Console
- SoftGrid Management Server
- An authoritative source for accounts (Active Directory or NT domain)
- SoftGrid Clients used on user PC's to access applications

The process of getting our first virtual application did take a good bit longer than with Thinstal. But the resulting application ran just the same.

Microsoft's pricing for Softgrid with an Enterprise agreement is in the form of a subscription.

Subscription pricing per month per user is \$.59 x 1000 users	\$591.00
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Total first year investment	\$7920.00
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Approx second year costs	\$7920.00
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SoftGrid scoring key

Ease of use: (15%) 7

Determine how intuitive and user-friendly the solution is, keeping in mind who the intended user is.

Administration & Management: (30%) 8

How easy or difficult it is to administer the solution on an ongoing basis.

Installation & Setup: (20%) 7

Rate the complexity and amount of time and effort required to get the solution up and running, relative to the implementation of solutions of similar size and functionality.

Support: (15%) 8

Rate the level of available customer support, be it in the form of documentation, online assistance, or live customer support.

Features & Value: (20%) 9

Overall value of the product in relation to similar products offering similar features and capabilities.

Overall score 39

Both products produced applications that ran fine on our machines. I have included a great product matrix that shows the existing competitive products and there features. Even though Softgrid has a longer up front setup than Thinstal the \$40000 difference in pricing would be very difficult to make up. Plus there is the ability in Softgrid to do software metering and to automatically disallow the use of the virtual application after a set time period.

Summary and Recommendations

This process of measuring or even understanding "where we are now", "where we want to be", "how are we going to get there" and "how will we know when we arrive" has been a daunting and sometimes frustrating undertaking. After a more detailed study and now better understanding of ITIL and Microsoft's version MOF, I now realize they are complicated, expensive, a full time job and possibly non achievable in answering my questions in the time frame allowed for this project. (Both are valuable processes that all IT departments should move towards implementing). The MOF tool did help us in a very broad sense but it really provided nothing our guts weren't already telling us. The use of IOM has really helped us in understanding where to focus and move forward in answering those questions. Just knowing that information has been good for the team. One of the areas shown needing improvement is in the area of image based deployment technology. One of the ways we may be able to move towards achieving this goal is through the use of virtual applications. This technology is new and fluid but I believe it is just the beginning and one of many ways's we will be providing application services to our customers in the future. Softgrid and Thinstal are just different ways of delivering application services to our customers. We are going to continue to explore in more depth the use of virtual applications and where they might fit in moving us forward. My hope for this project was to find a way to help the infrastructure area find some answers to "where we are now", "where do we want to be", "how are we going to get there", "how are we compared to others"? With the continued use of IOM our team will better be able to focus on the areas needing improvement and be able to provide SCDOR key result number 3 "Effective & Efficient Agency & Enterprise Services".



Application virtualization and isolation solutions feature comparison matrix

Author Ruben Spruijt
Version 1.4
*De Meern,
Netherlands* October 2007



• = Not applicable, • = It depends, • = Applicable, • = Under development

Application delivery solution using streaming, virtualization or isolation technology	Abtels VPS Professional	Abtels VPS and Notification Server	Citrix Application Streaming Feature	Microsoft SoftGrid + SMS 2003	Microsoft SoftGrid	Thinstall VS
Virtualization / Isolation¹						
Application virtualization ¹	•	•	•	•	•	•
Application isolation ¹	•	•	•	•	•	•
Application redirection ¹	•	•	•	•	•	•
No need for application regression testing	•	•	•	•	•	•
Application operates without any change of contexts on any level	•	•	•	•	•	•
Manageability¹						
Application is on-demand delivered as a service ²	•	•	•	•	•	•
Application specific license metering	•	•	•	•	•	•
Application virtualization solution license metering	•	•	•	•	•	•
Central management platform for application availability	•	•	•	•	•	•
Application availability	•	•	•	•	•	•
Application rollback	•	•	•	•	•	•
Application upgrade	•	•	•	•	•	•
Application active upgrade	•	•	•	•	•	•
Communication between servers and client can be secured without additional solutions	•	•	•	•	•	•
Native integration with (3 rd party) Electronic Software Distribution solutions	•	•	•	•	•	•
Native integration with Citrix application delivery solutions, AG advanced edition, OPS, WE	•	•	•	•	•	•
Native integration with other vendor solutions	•	•	•	•	•	•
Self service application provisioning	•	•	•	•	•	•

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Application delivery solution using streaming, virtualization or isolation technology	Abtels VPS Professional	Abtels VPS and Notification Server	Citrix Application Streaming Feature	Microsoft SoftGrid + SMS 2003	Microsoft SoftGrid	Thinstall VS
User driven application repair	•	•	•	•	•	•
Pre-launch and post-exit scripting	•	•	•	•	•	•
Pre-launch and post-exit scripting, centrally managed	•	•	•	•	•	•
Determine virtual application pre-requirements, centrally managed	•	•	•	•	•	•
Usability						
Desktop or laptop (online)	•	•	•	•	•	•
Laptop (offline)	•	•	•	•	•	•
Microsoft Terminal Services	•	•	•	•	•	•
Citrix Presentation Server	•	•	•	•	•	•
Limit application usage based on AD security groups	•	•	•	•	•	•
Limit application usage based on AD computer objects	•	•	•	•	•	•
Applications can run anonymous, without authentication with a directory service	•	•	•	•	•	•
Machine targeting, application can run dependant of target OS, centrally managed	•	•	•	•	•	•
Machine targeting, application can run dependant of target OS/language/service pack, centrally managed	•	•	•	•	•	•
Usable in a Novell Netware Environment	•	•	•	•	•	•
Usable in a Novell Open Enterprise Server (OES) environment	•	•	•	•	•	•
Application and user preferences can be run from removable storage without installing a client component	•	•	•	•	•	•
Application package is portable and can be stored and imported from removable media	•	•	•	•	•	•
Application streaming source can be based on client IP-subnet	•	•	•	•	•	•
Support for non-english based client operating systems	•	•	•	•	•	•
Application Characteristics						

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Application virtualization and isolation solutions feature comparison matrix

Application delivery solution using streaming, virtualization or isolation technology	Altiris SVS Professional	Altiris SVS and Hypervisor Server Client Application Streaming Feature	Microsoft SoftGrid + SMS 2003	Microsoft SoftGrid	Thinstall VS
Compression of package (25.1B)	+	+	+	+	+
Dynamic path relocation ¹⁴	+	+	+	+	+
Offline application usage can be time limited	+	+	+	+	+
Possible to package application with build-in drivers	+	+	+	+	+
Possible to package application with build-in services	+	+	+	+	+
Application profile can be digitally signed	+	+	+	+	+
Files / Registry virtualization	+	+	+	+	+
COM virtualization	+	+	+	+	+
DCOM virtualization	+	+	+	+	+
Named Pipes virtualization	+	+	+	+	+
Virtualization of fonts	+	+	+	+	+
Virtualization of drivers	+	+	+	+	+
Virtualization of services	+	+	+	+	+
Context awareness, interoperability between different application virtualization environments	+	+	+	+	+
Side by Side support (SxS)	+	+	+	+	+
Shortpath name support	+	+	+	+	+
File Type Association (FTA) centrally managed	+	+	+	+	+
File Type Association (FTA) locally managed	+	+	+	+	+
Microsoft .NET framework virtualization	+	+	+	+	+
Virtual reboot during packaging	+	+	+	+	+
Terminal Server drive remapping support	+	+	+	+	+

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Application virtualization and isolation solutions feature comparison matrix

Application delivery solution using streaming, virtualization or isolation technology	Altiris SVS Professional	Altiris SVS and Hypervisor Server Client Application Streaming Feature	Microsoft SoftGrid + SMS 2003	Microsoft SoftGrid	Thinstall VS
Dynamic data support	+	+	+	+	+
API/SDK available	+	+	+	+	+
Internet Explorer 6.x and 7.x can run simultaneously on the same client platform	+	+	+	+	+
Maximum application package file size limit	+	+	+	+	+
Context menu integration	+	+	+	+	+
Add or Remove programs integration	+	+	+	+	+
Architecture					
Designed for client/agent installation	+	+	+	+	+
Virtualization with client-code in user-mode	+	+	+	+	+
Virtualization with kernel-mode client code	+	+	+	+	+
Multiple concurrent client/agent versions on the same platform	+	+	+	+	+
No need for a license server	+	+	+	+	+
No need for a file server	+	+	+	+	+
No need for virtual application server/streaming server	+	+	+	+	+
No need for ESD infrastructure	+	+	+	+	+
Roaming user profile support	+	+	+	+	+
Supported client platforms					
Windows NT 4 - workstation	+	+	+	+	+
Windows NT 4 - terminal server edition	+	+	+	+	+
Windows 2000 - pro	+	+	+	+	+
Windows XP - pro	+	+	+	+	+

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Application delivery solution using streaming, virtualization or isolation technology	Altiris SVS Professional	Altiris SVS and Notification Server	Citrix Application Streaming Feature	Microsoft SoftGrid + SMS 2003	Microsoft SoftGrid	Thinstall VS
Windows XP - embedded ^{1A}	•	•	•	•	•	•
Windows 2000 - server	•	•	•	•	•	•
Windows 2000 - terminal services	•	•	•	•	•	•
Windows 2003 - server	•	•	•	•	•	•
Windows 2003 - terminal services	•	•	•	•	•	•
Windows - vista	•	•	•	•	•	•
Windows Server 2008 - server	•	•	•	•	•	•
Windows Server 2008 - terminal services	•	•	•	•	•	•
MacOS, running Win32 applications on MacOS	•	•	•	•	•	• ^{2B}
Linux, running Win32 applications on Linux	•	•	•	•	•	• ^{2B}
x86 platform support	•	•	•	•	•	•
x64 platform support	•	•	•	•	•	•
Win64 application support	•	•	•	•	•	•
Win32 application support	•	•	•	•	•	•
Win16 application support	•	•	•	•	•	•
Licensing						
Concurrent	•	•	• ³⁷	•	•	• ³⁸
Per device	•	•	•	•	•	•
Per named user	•	•	• ³⁵	•	•	•
Free for personal usage (FFPU)	•	• ³⁹	•	•	•	•
License Pricing, maintenance for second+ year is excluded						
Thinstall Virtualization Suite						•
©2008 for Virtualization Suite +						
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2 VERSION OVERVIEW

Each application virtualization solution has its own feature-set which is dependant off the version of the virtualization solution. This matrix is developed with the following version:

Virtualization Solution	Version
Microsoft SoftGrid	4.2.0
Thinstall Virtualization Suite	3.207
Altiris SVS	2.1 HF1
Citrix Presentation Server	4.5 FP1
AppStream, part of Altiris SVS Professional	5.2.1
Microsoft SMS	2003

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Windows XP – SP2

- ☐ Setup the largest possible (19046MB) NTFS partition
- ☐ Set _____ as username and SCDOR as organization
- ☐ Name PC FL810img for 810 laptop, FL610img for 610 laptop, FD620img for 620 desktop
- ☐ _____ as Administrator Password
- ☐ Set Time Zone to Eastern
- ☐ Set _____ as “Your Name”
- ☐ Install Drivers for NIC, modem, video card, sound card, smart card reader from Dell provided CD
- ☐ Laptops ONLY install touchpad & Intel mobile chipset from Dell provided CD
- ☐ Install all Windows updates
- ☐ Install Windows Media Format 10 series runtime & Windows media Player 10 series
- ☐ Set system performance to use “Adjust for best performance”
- ☐ Set Personalize Menu to Expand
- ☐ Display Properties – Appearance – Change Fonts to Large
- ☐ Display Properties – Appearance – Effects – From Standard to Clear
- ☐ Remove MSN & MSN Messenger from system components in Add/Remove software
- ☐ Set Power Scheme to Never Stand By
- ☐ Laptops ONLY Set Close Lid to Stand By
- ☐ Laptops ONLY Set Sleep Button to do nothing
- ☐ Uncheck display Welcome screen on Screen Saver
- ☐ Uncheck Group similar buttons on the taskbar
- ☐ Turn off auto hide notification area
- ☐ Set NIC to show when connected
- ☐ Remove the following icons from the Start Menu: Windows Updates, Windows Catalog, MSN Explorer, Outlook, Remote Assist, Messenger, Dell Accessories, Desktop Sharing, Program Compatibility Wizard, Files & Settings Transfer Wizard, and Internet Games.
- ☐ Create a c:\WinNT\System32 folder
- ☐ Show contents of c:\Windows\System 32 and c:\Program Files
- ☐ Set Virtual Memory to _use default_ minimum and _use default__ maximum
- ☐ Set O/S display list to 1 second
- ☐ Disable Error reporting
- ☐ Set folder options to display detail view and apply to all folders
- ☐ Show Control Panel in My Computer
- ☐ Auto Arrange and Align to Grid all Desktop Icons

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GPEDIT.MSC

Local Computer Policy \ Computer Configuration \ Windows Settings \ Security Setting \

Account Policy

Password Policy

☐ Maximum password age = 0

Local Policies

User Rights Assignment

Deny access to this computer from network

☐ Remove Dell user; Add new Guest account

Security Options

☐ Accounts: Rename administrator account to _____

☐ Accounts: Rename guest account to _____

☐ Devices: Unsigned drivers – silently succeed

☐ Domain Controller: Refuse machine account password changes = Enable

☐ Domain Member: Disable machine account password changes = Enable

☐ Interactive Logon: Do not require CTRL+ALT+DEL = Enable

☐ Shutdown: Clear virtual memory pagefile = Enabled

Public Key Policies

☐ Autoenrollment Settings – do not enroll certificates automatically

Local Computer Policy \ Computer Configuration \ Administrative Templates \

Windows Components

Internet Explorer

☐ Disable Automatic Install of IE Components = Enable

☐ Disable Periodic Check of IE Components = Enable

☐ Disable software update shell notifications on program launch = Enable

Windows Messenger

☐ Do not allow Windows Messenger to be run = Enable

☐ Do not automatically start Windows Messenger initially = Enable

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Windows Media Player

- ☐ Do Not Show First Use Dialog Boxes = Enable
- ☐ Prevent Desktop Shortcut Creation = Enable
- ☐ Prevent Quick Launch Toolbar Shortcut Creation = Enable
- ☐ Prevent Automatic Updates = Enable

System

Remote Assistance

- ☐ Solicited Remote Assistance = Disable
- ☐ Offer Remote Assistance = Disable

Error Reporting

- ☐ Display Error Notification = Disable
- ☐ Report Errors = Disable

Advanced Error Reporting Settings

- ☐ Report operating system errors = Disable

Network

Network Connections

- ☐ Prohibit use of Internet Connection Sharing on your DNS.....= Enable
- ☐ Prohibit use of internet Connection Firewall on your DNS.....= Enable

GPEDIT.MSC Continued

Local Computer Policy / User Configuration /

Windows Settings

Internet Explorer Maintenance

Browser User Interface

- ☐ Browser Title = SCDOR

Administrative Templates

Windows Components

Microsoft Management Console

Restricted/Permitted Snap-ins

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☐ Remote Desktops = Disable

Windows Update

☐ Remove Access to use all Windows Update = Enable

Start Menu & Taskbar

☐ Remove links and access to Windows Update = Enable

☐ Remove My Pictures icon from Start Menu = Enable

☐ Remove My Music icon from Start Menu = Enable

☐ Add Log Off to the Start Menu = Enable

☐ Remove Balloon Tips on Start Menu Items = Enable

Desktop

☐ Remove the desktop cleanup Wizard = Enable

System

☐ Don't display the Getting Started welcome screen... = Enable

☐ Turn off Autoplay = Enable for all drives *Default turns off autoplay on all except CD drives. Should we use the Default?*

☐ Windows Auto Updates = Enable *Enable prohibits Windows from searching for updates.*

*** END of GPEDIT.MSC ***

☐ Change Local Security Settings Admin Tools > Local Security Settings > Audit Policy – make all Success, Failure

☐ Add a Quick Launch bar – remove media player icon

☐ Uncheck Allow Remote Assistance

☐ Make My Documents folder point to c:\MyData

☐ My Computer Window – view menu – arrange icons – uncheck show groups

☐ Tools menu – folder options – view – uncheck hide protected OS files

☐ MyData folder – delete My Pictures; create AIMS, Word, Excel, Access, PPoint, TEV, AADARP

☐ Remove all items from shared documents folder

☐ Set icon vertical & horizontal spacing to 45

☐ REGEDIT – HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\System\LegalNoticeCaption
Important Notice!

☐ REGEDIT – HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\system\LegalNoticeText
The information you are about to review is subject to South Carolina and federal law regarding the browsing of tax information. You may be subject to criminal prosecution, dismissal from employment, or penalties if the review of such information is not for legitimate purposes. Only those whose work duties require the examination of this information should access it.

☐ In the default user, send to folder, create a shortcut to NotePad

☐ Laptop ONLY - Turn touch sensitivity down

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CREATE 1st GHOST IMAGE HERE:

Novell Client Install

- ☐ Get latest version with all service packs
- ☐ Run Setup – Custom Install
 - ☐ Install – NDPS, Workstation Manager, ZENWorks Application Launcher, and Remote Management
 - ☐ Choose IP Only
 - ☐ Advanced Tab
 - ☐ Enable Salvage = Off
 - ☐ Enable Purge = Off
 - ☐ Enable NetWare Utilities = Off
 - ☐ Enable Browse To = Off
 - ☐ Default Capture Tab
 - ☐ Uncheck Notify
 - ☐ Advanced login Tab
 - ☐ Uncheck Variables Button
- ☐ Remove Read Me icon from Start menu

GroupWise Install

- ☐ Install from \\dor_gwm\vol1\gw7\clientcd\client\win32\setup.exe
 - ☐ Choose not to put messenger icons out
 - ☐ Put icons on desktop & Quick launch bar
 - ☐ Set IP address to 10.84.12.25, port 1677
 - ☐ Go to address book, name completion search order – Make Novell GW address book 1st and Frequent contacts 2nd
 - ☐ Tools, Options, Environment – uncheck launch messenger at startup, uncheck read next after accept
 - ☐ Tools, Options, Security – check the No password Required with eDirectory
 - ☐ Shut off Tips from starting up

CREATE 2nd GHOST IMAGE HERE:

MS Office 2003 Install

- ☐ Custom install
 - ☐ Deselect Outlook
 - ☐ Run all features from my computer except Outlook and International stuff in the Office Shared Features section
- ☐ Install any service packs
- ☐ Hide the language toolbar from the taskbar
- ☐ Create Word & Excel icons on the desktop and quick launch bar

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☐ Open Word

- Default margins should be set at 1" top/bottom/left/right

- Tools > Options >

File Locations tab:

Desktops:

Change default file location of Documents to
H:\users\%login%\Word

Change Workgroup Templates to H:\shared\wordfiles

Laptops:

Change default file location of Documents to c:\MyData\Word

Edit tab:

Deselect – 'Enable Click and Type'

Deselect – 'Show Paste Options buttons'

General tab:

Deselect – 'Provide feedback with animation'

Deselect – 'Automatically create drawing canvas when
inserting AutoShapes'

View tab:

Deselect – Show 'Smart Tags'

Deselect – Show 'Startup Task Pane'

- Tools > AutoCorrect Options

Auto Correct tab:

Delete smiley face associated with :)

Smart Tags tab: Deselect – 'Label Text with smart tags'

Deselect – 'Show Smart Tag Actions buttons'

- View > Task Pane

Deselect in order to close "help" pane

Open Excel

- Tools > Options

View tab:

Deselect – Show 'Startup Task Pane'

General tab:

Laptops: Change default file location to c:\MyData\Excel

Desktops: Change default file location to

H:\users\%login%\Excel

Change 'Sheets in new workbook' to 3

- Tools > Customize

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Options tab: Select 'Show standard and formatting toolbars on two rows'

☐ Open Access

○ Tools > Options

View tab:

Deselect – Show 'Startup Task Pane'

General tab:

A database must be open to do the following:

Laptops: Change default file location to c:\MyData\Access

Desktops: Change default file location to

H:\users\%login%\Acc2000

☐ Delete New and Open office documents icons from the start menu

Forvus Install

☐ Run Setup CD (new version)

☐ Laptop – Copy icon to desktop and quick launch bar
Add /s=def.cnf switch to the Target run line

☐ Remove Configuration icon from the Start Menu

Fullshot Install

☐ Run f:\install\FullShot8T\setup.exe
Serial number: ga220x19w15s56

○ Remove icon from desktop

P&I Install

☐ Run f:\install\PandI

☐ Copy interest rate table from f:\public\snapshot\pandi 2k \int.txt to c:\program files\pi\int.txt

TEV Install

☐ Install from Network

☐ Create desktop icon

AADARP Install

☐ Install from Bob Hatcher

☐ Create desktop icon and make it run in full screen

RODaily Install

☐ Install from Bob Hatcher

☐ Create desktop icon and start menu icons

☐ Copy Access database to c:\mydata\rodaily

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Daily Reports Install

- ☐ Install from Bob Hatcher\
- ☐ Create desktop icon

Data Warehouse Install

- ☐ Copy from D:\data warehouse to c:\data warehouse
- ☐ Copy contents of D:\mydata to c:\mydata

TaxMaster Install

- ☐ Install from Bob Hatcher
- ☐ Change path from d:\program files\aims to c:\program files\aims
- ☐ Create Desktop icon
- ☐ Install Beefsteak.tnz from Bob Hatcher
- ☐ Have Windows always open TMZ files with TM4

CREATE 3rd GHOST IMAGE HERE:

Internet Explorer

- ☐ Add *.sctax.org to trusted sites
- ☐ Change homepage to dragnet.sctax.org/default.htm
- ☐ Lock toolbars and move Links bar dwn under address bar
- ☐ Set security to medium-low
- ☐ Uncheck all options on auto-complete
- ☐ Change search companion to not use animated character
- ☐ Don't show balloon tips
- ☐ Edit toolbars – remove discuss & media; add – full size, size
- ☐ Add the following shortcuts to links toolbar – Dragnet, WebMail, SCDOR,

On-track Plugin

- ☐ See Scott, get from ot.sctax.org

EWork

- ☐ Darlene to install new version

Authorware Player

- ☐ Download from www.macromedia.com/software/authorware/download
- ☐ Click on the download Macromedia Authorware player button

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JAVA

- ☐ Install from java.sun.com/getjava
- ☐ Remove shortcut from desktop & start menu
- ☐ Uncheck use java 2 from IE advance options (for ework)

Acrobat Reader

- ☐ Download from www.adobe.com
- ☐ Remove desktop shortcut
- ☐ Go to preference > update- manually & uncheck show auto-update confirmation

Quicktime

- ☐ Download from www.apple.com/quicktime
- ☐ Uncheck file associations & notify me if other apps want to modify
- ☐ Preference – uncheck auto-update
- ☐ Delete icons from desktop, start menu, quick launch and system tray

Authoring Connector

- ☐ Install from CD (Doug)
- ☐ Change server to dragnet.sctax.org

Flash

- ☐ Download from www.macromedia.com

Omniform

- ☐ F:\public\web application\omniform filler\

Panagon Web Plugin

- ☐ Go to <http://panagon.sctax.org/idmoc/>
- ☐ Set on Link toolbar and rename to FileNetOC

- ☐ Empty Recycle Bin

CREATE 4th for Laptops & Final for Desktop GHOST IMAGE HERE:

(Final image for desktop)

- ☐ Install VPN Client and Air Card on D810 and D610 (laptops only)
- ☐ WAS NOT APPROVED – DID NOT INSTALL: Install MS Streets and Tips (laptops only)
- ☐ Empty Recycle Bin

CREATE Final GHOST IMAGE for Laptops HERE:

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Microsoft Operations Framework (MOF) Self-Assessment Tool (SAT)

Welcome

Welcome to the Microsoft Operations Framework (MOF) Self-Assessment Tool (SAT).

Objectives: This tool is designed to enable you to:

- Better understand the effectiveness of the IT services and processes in your organization.
- Define a specific problem or opportunity regarding your IT services and/or processes.
- Identify a variety of follow-up actions based on information you provide.



Preparation: Before starting the assessment, it is helpful to identify your most crucial IT service-related or IT process-related problem. You will also want to identify specifics regarding the impacts and evidence of the problem such as financial, metric, or anecdotal evidence.

How it works: The assessment will step you through the development of a detailed problem and impact statement. You will be asked to consider a series of potential sources for your identified problem. Some of the areas will be more applicable to your particular problem than others. You do not need to select a problem source from every area considered; you will have the option to identify sources as not being applicable and to continue with the survey. The object is to have you consider the identified problem from a variety of viewpoints to identify sources that you might not have already considered.

The output: Your final report will include the assessment data you identify, a problem statement you develop, a summary of impacts on the organization, and a variety of customized next-step actions to take to begin addressing the specific problem. Anonymous information about the service delivery or process issues you might be experiencing will be stored in a Microsoft database for analysis to facilitate future improvements to the assessment tool. No private data is asked for or captured, and none will be stored.

The final report is designed to assist you with communicating the problem within your organization and to assist in the development of a business case for the follow-up activities. The assessment output will provide you with a solid basis for communication but you might also find it helpful to edit the output further for your specific needs.

1. Problem Location

IT problems are commonly categorized as an issue with an *IT service* such as messaging, or of an *IT operational process* such as change management or incident management.

Is the problem primarily with a service or an operational process?

- ☒ Service
- ☐ Process

For the service problem you have identified, consider the quality of service that is provided to your customers and

users from their point of view.

Problems occur when the service definition, customer and user expectations and perceptions and the actual service delivery are not in alignment. Is there a problem with service quality? If so, identify if the following aspects are either missing (undefined) or inadequate (misaligned): Please select up to a maximum of four items from the list below.

What is a service?

A service is a set of activities performed or supplied by IT that provides a direct business value. Service level agreements (SLAs) are negotiated regarding the level of service to be supplied, which is then formally documented. Services differ from components in completeness: A service provides a direct business value; a component cannot. Examples of common services include messaging, customer relationship management, desktop management, and line-of-business (LOB) applications.

What is an operational process?

An operational process is a series of actions designed to achieve a result, product, or service that is usually a continuous operation. IT operational processes support services through their life cycle. The MOF operational processes include:

- Change management
- Release management
- Configuration management
- Directory services administration
- Job scheduling
- Security administration
- Service monitoring and control
- Network administration
- Storage management
- Systems administration
- Service desk
- Incident management
- Problem management
- Availability management
- Capacity management
- Financial management
- Infrastructure management
- IT service continuity management
- Security management
- Service level management
- Workforce management

2. Service Affected

You identified your problem to be primarily with an IT service. Specifically, what service or subservice is the problem?

- E-mail, communications, and collaboration
- Identity and access management

- ☐ Desktop and device management
- ☐ Infrastructure
- ☐ Monitoring
- ☐ Patch management
- ☐ Storage management
- ☐ Anti-virus

3. Stakeholder

For both business and IT, select those **stakeholder** groups most likely to experience, be affected by, or be concerned with this service-related problem. Please select up to a maximum of four items from the list below.

Business Stakeholders

- ☐ End-business customers
- ☐ Board of Directors
- ☐ Business senior management
- ☐ Business middle management
- ☐ Business first-line management
- ☒ Entire business community
- ☐ Users of the service
- ☐ A specific region, department, line of business, other business unit:
- ☐ Not known/Not applicable (Selecting this will clear-out any and all selections made above.)

IT Stakeholders

- ☐ IT senior management
- ☐ IT middle management
- ☐ IT first-line management
- ☐ IT service delivery managers
- ☐ IT process owners
- ☐ IT business unit liaisons
- ☒ IT service/application development
- ☐ IT operations

- ☐ IT suppliers
- ☐ IT delivery function
- ☐ IT support function
- ☒ Service desk/help desk
- ☒ IT program and project management
- ☐ Other: _____
- ☐ Not known/Not applicable (Selecting this will clear-out any and all selections made above.)

The users of a particular service often have different needs, priorities, and experiences with a service. Users with similar needs, priorities, and experiences are grouped together as a stakeholder group. These lists identify typical business and IT stakeholder groups.

All problems affect both the business and the IT organization.

Select the stakeholder groups that this problem affects the most. If your specific business stakeholder does not appear on the list, choose the second-to-the-last selection - **A specific region, department, line of business, or other business unit** - and enter the specific region, department, line of business, or business unit name that applies to your organization. If you cannot identify a business stakeholder, choose **"Not known/Not applicable."**

If your specific IT stakeholder does not appear on the list, choose the second-to-the-last selection - **Other** - and enter the specific IT stakeholder name that applies to your organization. If you cannot identify an IT stakeholder, choose **"Not known/Not applicable."**

4. Stakeholder Ranking

You identified the following stakeholder groups as those most aware of, affected by, or concerned with the problem with the Identity and access management service. In cases where you have identified more than three stakeholders in each group, please identify the top three as necessary.

This problem is primarily being experienced by the following business stakeholders:

- Entire business community

This problem is primarily being experienced by the following IT stakeholders:

- IT service/application development
- Service desk/help desk
- IT program and project management

Customer's expectation of the service

Missing

☐

Inadequate

☒

Users' expectation of the service	<input type="checkbox"/>	<input type="checkbox"/>
Customer's perception of the service	<input type="checkbox"/>	<input checked="" type="checkbox"/>
User's perception of the service	<input type="checkbox"/>	<input type="checkbox"/>
Provider's perception of the customer's expectations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provider's perception of the user's expectations	<input type="checkbox"/>	<input type="checkbox"/>
Service specified by the provider	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Service delivered by the provider	<input type="checkbox"/>	<input type="checkbox"/>
Service communicated by the provider	<input type="checkbox"/>	<input type="checkbox"/>

☐ Not known/Not applicable (Selecting this will clear-out any and all selections made above.)

Customers are those who have the authority to define and authorize funding for a service, such as the vice president of sales.

Users are all the receivers of the service, such as the entire sales staff.

Expectations, perceptions, and actual service delivery influence users' and customers' view of service quality. Problems occur when the aspects of service quality are out of alignment, for example, when users have higher expectations of the service than the actual service quality being delivered.

Consider what aspect of service quality most contributes to the problem. Identify if the following aspects are either undefined (for example, expectations or perceptions are not known) or inadequate/misaligned (for example, inadequate service quality). If you cannot identify this or if it is not known to you, choose **Not known/Not applicable**.

5. Business Perspective Gap

Is the problem related to a gap between any of the listed aspects of service quality?

- ☐ Between Customer's expectation of the service and Customer's perception of the service
- ☐ Between Customer's expectation of the service and Provider's perception of the customer's expectations
- ☐ Between Customer's expectation of the service and Service specified by the provider
- ☒ Between Customer's perception of the service and Provider's perception of the customer's expectations
- ☐ Between Customer's perception of the service and Service specified by the provider
- ☐ Between Provider's perception of the customer's expectations and Service specified by the provider
- ☐ Not known/Not applicable

From the list, select the two quality aspects that are not in alignment. For example, if the sales staff expects to access the contact-management service 24 hours a day and the provider only provides access 15 hours a day, there is a gap between the user's expectations of the service and the service that the provider delivers.

6. IT Provider Perspective

For the service problem you have identified, consider the quality of service that is provided to your customers and users from IT's point of view. Are any of the following aspects of the service either missing or inadequate? If these areas are not considered a source of the problem, choose **Not known/Not applicable**. Please select up to a maximum of four items from the list below.

	Missing	Inadequate
Profit and value driven by the service	<input type="checkbox"/>	<input type="checkbox"/>
Business need and customer satisfaction supported by the service	<input type="checkbox"/>	<input type="checkbox"/>
Service level agreements (SLAs) for this service	<input type="checkbox"/>	<input type="checkbox"/>
Services underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Service specification for this service	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Service delivery for this service	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Service level manager for this service	<input type="checkbox"/>	<input type="checkbox"/>
Service management processes underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Systems underpinning this service	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Applications underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Databases underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Networks underpinning this service	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Service management and monitoring tools underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Operational level agreements (OLAs) underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Underpinning contracts (UCs) underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Internal and external service providers underpinning this service	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Not known/Not applicable (Selecting this will clear-out any and all selections made above.)		

Analyzing an IT service problem from a variety of viewpoints enables the gathering of sufficient information to understand the issue and the underlying causes. You have already evaluated this service-related problem from the viewpoint of the business. Now it is time to look more specifically at the service and the underpinning services from

IT's perspective.

To deliver quality service to users and customers, IT supports many aspects of the service and its underpinning services. Underpinning services are the other services, often unknown or unseen by users, that the end service depends upon to operate, such as networking or database management. The service specification, service delivery, and underpinning services might not be able to meet the expectations or needs of the business.

7. Technical Platform

Is the problem with the service related to a particular technical platform or subservice? If this is a source of the problem, select the platforms or subservices that are either missing or inadequate. Please select up to a maximum of four items from the list below.

	Missing	Inadequate
Network Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Computing Devices	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Storage Devices	<input type="checkbox"/>	<input type="checkbox"/>
Deployment Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Network Services	<input type="checkbox"/>	<input type="checkbox"/>
Firewall Services	<input type="checkbox"/>	<input type="checkbox"/>
Directory Services	<input type="checkbox"/>	<input checked="" type="checkbox"/>
File and Print Services	<input type="checkbox"/>	<input type="checkbox"/>
Data Services	<input type="checkbox"/>	<input type="checkbox"/>
Web Application Services	<input type="checkbox"/>	<input type="checkbox"/>
Infrastructure Management Services	<input type="checkbox"/>	<input type="checkbox"/>
Backup and Recovery Services	<input type="checkbox"/>	<input type="checkbox"/>
Certificate Services	<input type="checkbox"/>	<input type="checkbox"/>
Remote Access Services	<input type="checkbox"/>	<input type="checkbox"/>
Middleware Services	<input type="checkbox"/>	<input type="checkbox"/>
Messaging Services	<input type="checkbox"/>	<input type="checkbox"/>
Other: <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Not known/Not applicable (Selecting this will clear-out any and all selections made above.)

Service problems can be due to a technology issue. Or they can result from the maturity of the service life-cycle phases used to develop and support the service. Sometimes it is a combination of both technology and life-cycle

phases. Consider your problem from both perspectives.

After reviewing the technology platform and IT life cycle, if this is not the source of your problem, select **Not known/Not applicable** in the response list and continue with the assessment.

8. IT Life Cycle Perspective

Is the problem related to the **phase of the IT life cycle** supporting the service?

Select those phases that are either missing (not defined or performed) or inadequate. Please select up to a maximum of four items from the list below.

	Missing	Inadequate
Evaluation	<input type="checkbox"/>	<input type="checkbox"/>
Procurement	<input type="checkbox"/>	<input type="checkbox"/>
Defining	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Design	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Development	<input type="checkbox"/>	<input type="checkbox"/>
Deployment	<input type="checkbox"/>	<input type="checkbox"/>
Delivery (Operations)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Decommissioning	<input type="checkbox"/>	<input type="checkbox"/>
Testing	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance	<input type="checkbox"/>	<input type="checkbox"/>
Improvement	<input type="checkbox"/>	<input type="checkbox"/>
Support	<input type="checkbox"/>	<input type="checkbox"/>
Administration	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Training	<input type="checkbox"/>	<input type="checkbox"/>

☐ Not known/Not applicable (Selecting this will clear-out any and all selections made above.)

Service problems can be due to a technology issue. Or they can result from the maturity of the service life-cycle phases used to develop and support the service. Sometimes it is a combination of both technology and life-cycle phases. Consider your problem from both perspectives.

After reviewing the technology platform and IT life cycle, if this is not the source of your problem, select **Not known/Not applicable** in the response list, and continue with the assessment.

9. Problem Source Ranking

When analyzing the potential sources of this problem, you identified several factors as either missing or inadequate. To further narrow the problem definition, select the top three to five aspects that most contribute to this problem, in order of priority. Select from 1 through 5 for each aspect, where 1 represents the highest priority.

	Top 1	Top 2	Top 3	Top 4	Top 5
Services					
Customer's expectation of the service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Customer's perception of the service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provider's perception of the customer's expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Service specified by the provider	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Service specification for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Systems underpinning this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Service delivery for this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Networks underpinning this service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Network Devices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deployment Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computing Devices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Directory Services	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Defining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery (Operations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Administration	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Affected

Specifically, who does this problem affect? Please select up to a maximum of four items from the list below.

- ☐ End-business customers
- ☐ Board of Directors
- ☐ Top management

- ☐ Marketing
- ☐ Sales
- ☐ Manufacturing
- ☐ Research and development
- ☐ Legal
- ☐ Human resources
- ☒ IT customers
- ☐ IT users
- ☐ IT management
- ☐ IT development
- ☐ IT operations
- ☐ IT suppliers
- ☐ IT business unit liaisons
- ☐ IT service delivery managers
- ☒ IT process owners
- ☐ IT delivery function
- ☐ IT support function
- ☒ IT program and project management
- ☒ All stakeholders
- ☐ Custom (enter a specific stakeholder here)

Some problems effect one group of stakeholders more than others or more significantly than others. In some cases, the problem is only evident to a subset of stakeholders. For example, a problem with a sales management system may be evident to the sales department only, while a problem with e-mail may affect most internal and external stakeholders.

For the problem you have defined, identify the the stakeholder group or groups that are most affected.

What is the effect of this problem and its magnitude? Select the effect, and then enter the current value and the target or desired value. (These are fill-in the blanks.)

If you can quantify the effects of this problem on the stakeholder, enter the values in the chart. You may enter values for each effect you selected and you may enter any value that will support the quantification of the effects such as hours, dollars, percentage, etc. Enter the current measurement in the Current Value column, and the desired goal or target for the measurement in the Target Value column. If you are not able to quantify a particular effect at this time, leave the entry blank.

Please select up to a maximum of four items from the list below.

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1. The effect of this problem on IT customers is/are:

	Current Value	Target Value
<input type="checkbox"/> Time		
<input type="checkbox"/> Cost		
<input type="checkbox"/> Risk		
<input checked="" type="checkbox"/> Delays		
<input type="checkbox"/> Unplanned work		
<input type="checkbox"/> Agility		
<input type="checkbox"/> Speed		
<input type="checkbox"/> Satisfaction		
<input type="checkbox"/> Profit/revenue		
<input type="checkbox"/> Efficiency		
<input type="checkbox"/> Productivity		
<input type="checkbox"/> Reliability		
<input type="checkbox"/> Performance		
<input type="checkbox"/> Quality		

2. The effect of this problem on IT process owners is/are:

	Current Value	Target Value
<input type="checkbox"/> Time		
<input type="checkbox"/> Cost		
<input type="checkbox"/> Risk		
<input type="checkbox"/> Delays		
<input type="checkbox"/> Unplanned work		
<input type="checkbox"/> Agility		
<input type="checkbox"/> Speed		
<input type="checkbox"/> Satisfaction		

<input type="checkbox"/>	Profit/revenue		
<input type="checkbox"/>	Efficiency		
<input checked="" type="checkbox"/>	Productivity		
<input type="checkbox"/>	Reliability		
<input type="checkbox"/>	Performance		
<input type="checkbox"/>	Quality		

3. The effect of this problem on IT program and project management is/are:

	Current Value	Target Value
<input type="checkbox"/> Time		
<input type="checkbox"/> Cost		
<input type="checkbox"/> Risk		
<input checked="" type="checkbox"/> Delays		
<input type="checkbox"/> Unplanned work		
<input type="checkbox"/> Agility		
<input type="checkbox"/> Speed		
<input type="checkbox"/> Satisfaction		
<input type="checkbox"/> Profit/revenue		
<input type="checkbox"/> Efficiency		
<input type="checkbox"/> Productivity		
<input type="checkbox"/> Reliability		
<input type="checkbox"/> Performance		
<input type="checkbox"/> Quality		

4. The effect of this problem on All stakeholders is/are:

	Current Value	Target Value
<input type="checkbox"/> Time		
<input type="checkbox"/> Cost		
<input type="checkbox"/> Risk		
<input type="checkbox"/> Delays		

<input type="checkbox"/>	Unplanned work	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Agility	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Speed	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Satisfaction	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Profit/revenue	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Efficiency	<input type="text"/>	<input type="text"/>
<input checked="" type="checkbox"/>	Productivity	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Reliability	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Performance	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Quality	<input type="text"/>	<input type="text"/>

11. Evidence

What evidence do you have of this effect?

Stakeholder	Effect	Evidence
IT customers	Delays	<input type="text" value="Anecdotal"/> <input type="text"/>
IT process owners	Productivity	<input type="text" value="Anecdotal"/> <input type="text"/>
IT program and project management	Delays	<input type="text" value="Anecdotal"/> <input type="text"/>
All stakeholders	Productivity	<input type="text" value="No evidence"/> <input type="text"/>

The impact of the problem is most easily communicated when there is documented, specific evidence of the problem. If the effect of the problem was evident in metrics, IT or business reports are generally the best source of evidence. If analysis was done to determine the effect of the problem, a spreadsheet report may be the best evidence. Sometimes, the impact of the problem is demonstrated by anecdotal evidence that may have been gathered through email messages, voicemails, interviews, service desk feedback or satisfaction surveys. What specific evidence, if any, do have of the effects of the identified problem on the stakeholder group(s)? Select the appropriate choice from those listed or enter your specific details in the "other" option.

End of MOF Self Assessment

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Attachment 4

Microsoft Service Framework (MSF) Self-Assessment Tool

MSF Self-Assessment Tool

Problem Summary:

You have specified a problem with the SERVICE provided by your IT organization. Specifically, your organization is experiencing a problem with identity and access management.

This problem is primarily experienced by the following business and IT stakeholders: Users of the service, IT senior management, IT process owners, IT program and project management. When analyzing this problem, you might have identified additional stakeholders and sources of the problem. The complete list is included in the table below, followed by the effects of this problem on the organization.

Who Experiences the Problem?	Why Is There a Problem from a Business Perspective?	Why Is There a Problem from an IT Perspective?	What Aspects of the Technology and IT Life Cycle Contribute to the Problem?
<p>The business stakeholders most likely to experience, be affected by, or be concerned with this service-related problem are:</p> <ul style="list-style-type: none"> • Users of the service <p>The IT stakeholders most likely to experience, be affected by, or be concerned with this service-related problem are:</p> <ul style="list-style-type: none"> • IT senior management • IT process owners • IT program and project management 	<p>From the business perspective, the following aspects of service quality contribute to the problem the most:</p> <ul style="list-style-type: none"> • Inadequate: <ul style="list-style-type: none"> ◦ Service quality expected by customers ◦ Service quality perceived by customers ◦ The provider's perception of the service quality expected by customers ◦ Service quality specified by the provider <p>In addition, there is a gap in the following aspects of service quality:</p> <ul style="list-style-type: none"> • Between Service quality perceived by customers And The provider's perception of the service quality expected by customers 	<p>From an IT perspective, the following aspects of service quality contribute to the problem the most:</p> <ul style="list-style-type: none"> • Missing or non-existent: <ul style="list-style-type: none"> ◦ Service specification for this service ◦ Systems underpinning this service • Inadequate: <ul style="list-style-type: none"> ◦ Service delivery for this service ◦ Networks underpinning this service 	<p>The following technical platforms for the service contribute to this service problem:</p> <ul style="list-style-type: none"> • Missing or non-existent: <ul style="list-style-type: none"> ◦ Network Devices ◦ Deployment Services • Inadequate: <ul style="list-style-type: none"> ◦ Computing Devices ◦ Directory Services <p>The following phases of the IT life cycle supporting this service are either missing, non-existent, or inadequate:</p> <ul style="list-style-type: none"> • Inadequate: <ul style="list-style-type: none"> ◦ Defining ◦ Design ◦ Delivery (Operations) ◦ Administration

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Attachment 5

Microsoft Operations Framework (MOF) Self-Assessment Tool

Microsoft Operations Framework (MOF) Self-Assessment Tool (SAT)	
Problem Recommendation	
Analysis and Recommendations	Links
Learn more about MOF	See the MOF Home page.
Learn more about Microsoft Operations Framework (MOF) and how it supports the improvement of your IT organization, both from a service and process standpoint.	MOF Executive Overview
	Get trained on MOF through the MOF Essentials course
	Read on MOF guidance and best practices
	Understand the MOF Common Core Improvement Roadmap (CIR)
	Read the whitepaper: "MOF: An Actionable and Prescriptive Approach to ITIL"
	Understand Microsoft's MOF consulting and training offerings
	Read MOF Case Studies:
	<ul style="list-style-type: none"> MSN Hommail Group Controls Rate of Change and Establishes New Processes Microsoft Services Helps Chinese Telecom Company Upgrade Messaging Workflow to Achieve 99.999 Percent Reliability BP Uses Microsoft Operations Framework to Maximize System Performance NEC Gains Functionality, Reduces Downtime, and Improves Security of Its E-Mail System
Do the IOM assessment	Learn more about IOM
You might want to do a brief subset of the Microsoft Infrastructure Optimization Model (IOM) assessment. The IOM provides a path for aligning IT and business to create a mature infrastructure with an optimized balance of people, process, and technology. It assesses your current IT infrastructure and tells you how to improve it based on your business priorities and proven Total Cost of Ownership (TCO) enhancers.	See the IOM assessment

Attachment 6

IOM Assessment

Identity and Access Management

1. Does this organization use Active Directory for authenticating 80 percent or more of their users?

2. Does this organization have a directory-based tool to centrally administrate configurations and security on 80 percent or more of their desktops (e.g., Group Policy)?

3. Does this organization use a directory-based solution to allow users to protect content from being copied, printed, and distributed without proper rights/permissions?

4. Does this organization have a central tool to automate user provisioning (e.g., issuing new accounts, changing passwords, synchronizing permissions, enabling access to business applications) across 80 percent or more of their heterogeneous systems?

5. Does this organization use a directory-based tool to enable authenticated access to external customers and business partners?

Desktop, Device, and Server Management

1. Does this organization have automated patch distribution covering 80 percent or more of their desktops?

2. Does this organization have a defined set of standard basic images for 80 percent or more of their laptops?

3. Does this organization have a centralized solution to track, manage, and upgrade their mobile devices?

4. Does this organization have a solution for user identity validation and data protection—if lost—for their mobile devices?

5. Does this organization have a desktop image strategy for managing desktop images that includes OS, anti-virus, management tools, productivity tools (like Microsoft Office) as well as LOB applications?

6. Does this organization have a plan to manage a maximum of two OS versions for 80 percent of their desktops?

7. Does this organization have monitoring for 80 percent or more of their critical servers for ensuring consistent and reliable user experiences (e.g., ensuring that e-mail is always available)?

8. Does this organization have an automated software distribution solution for OS deployment?

9. Does this organization have an automated tracking of hardware and software assets of 80 percent or more of their desktops?

10. Does this organization have a defined set of standard basic images for 80 percent or more of their desktops?

11. Does this organization have 80 percent or more of their desktops running Windows XP or 2000 as their primary OS?

12. Does this organization have 80 percent or more of their XP desktops running SP2?

13. Does this organization have 80 percent or more of their desktops running Office 2003 or newer?

14. Does this organization use compatibility/app certification testing solution to verify/deploy 80 percent or more of their software distributions to their desktops?

15. Does this organization have a patch management solution for 80 percent or more of their servers?

16. Does this organization require a secured and guaranteed way to verify secure communications between their corporate network and mobile devices (certificates)?

17. Does this organization offer access to Web applications via WAP or HTTP for mobile devices?

18. Is this organization actively pursuing server consolidation with virtualization?

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19. Does this organization have a layered image strategy for managing their desktop images?

20. Does this organization have standardized N (current version of OS—e.g., Windows Vista) & N-1 (previous release of OS—e.g., Windows XP SP2) OS versions for all desktops?

21. Does this organization have SLA monitoring for 80 percent or more of their servers with service level reporting capabilities?

22. Does this organization have a capacity analyzer for their enterprise services (such as e-mail)?

23. Does this organization use an automated solution to continuously update configuration settings and/or applications in mobile devices?

24. Does this organization have an automated patch management solution for their mobile devices?

25. Is this organization using virtualization to dynamically move workloads from server to server based on resource needs or business rules?

Security and Networking

1. Does this organization have anti-virus software (with automated signature updating) running on 80 percent or more their desktops?

2. Does this organization have a centralized firewall (not per desktop) for their enterprise protecting 80 percent or more of their systems (e.g., ISA, Checkpoint, Nokia)?

3. Does this organization have internal servers for basic network services (DNS, DHCP)?

4. Does this organization have a policy-managed firewall software (e.g., BlackICE, Windows Firewall, Zone Alarm) running on 80 percent of their servers?

5. Does this organization have a policy-managed firewall software (e.g., BlackICE, Windows Firewall, Zone Alarm) running on 80 percent of their desktop?

6. Does this organization provide employees secure remote access to internal resources and LOB applications beyond e-mail (e.g., VPN and/or terminal services)?

7. Does this organization use a secured and guaranteed way to verify communication between servers to secure network communications between critical servers such as domain controllers and e-mail servers? (Examples of a secured communication are IPsec and Certificates.)

8. Does this organization provide a secured communication mechanism for capturing personal information?

9. Has their organization deployed a secure wireless network using Active Directory and IAS/RADIUS for authentication and authorization?

10. Does this organization have a centrally managed certificate services infrastructure (PKI)?

11. Does this organization proactively manage bandwidth to branch offices (i.e., WAN optimization)?

12. Does this organization have integrated threat management and mitigation across client, server edge?

13. Does this organization have a quarantine solution for unpatched/infected computers?

Data Protection and Recovery

1. Does this organization have a backup and restore solution for 80 percent or more of their business-critical servers?

2. Does this organization centrally manage branch office data backup?

3. Does this organization have backup and restore and defined recovery times—via SLA—for 80 percent of all servers?

4. Does this organization have backup and restore and defined recovery times—via SLA—for 80 percent of all desktops?

IT and Security Process

1. Does this organization have an individual who is accountable for information security and who defines a risk management process for the organization?

2. Does this individual have the authority to define Security Process and define enforcement vehicles for the organization?

3. Does this organization have a formal information security risk management program?

4. Does this organization have an Incident Response process?

5. Does this organization have a process to manage the identity of users, devices, or services?

6. Does this organization have a process to manage anti-virus controls?

7. Does this organization have a process to deploy security updates to all network-connected IT assets?

8. Does your organization have a process to verify security policy compliance of all network-connected devices?

9. Does this organization follow a security review process for software acquisition (commercially available, custom, and internally developed)?

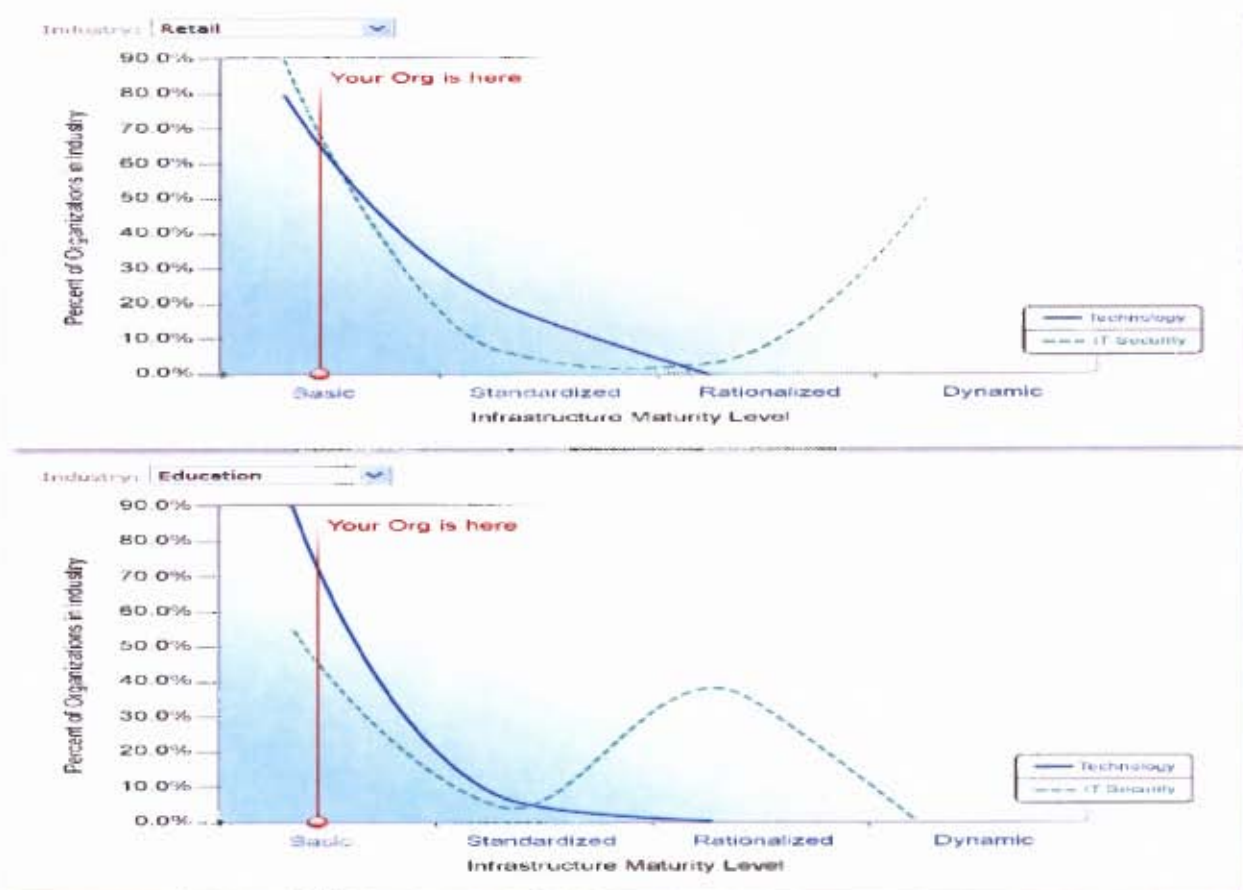
10. Does this organization have a process to classify data and apply appropriate data security controls?

11. Which of the following best describes how this organization manages and operates their IT Infrastructure?

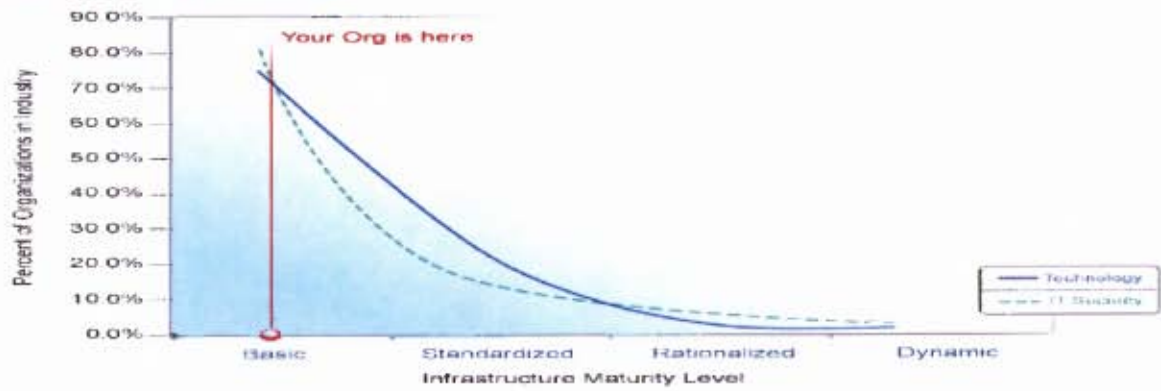
12. Which of the following best describes how this organization defines their PC deployment Strategy?

Attachment 7

Maturity Level comparison



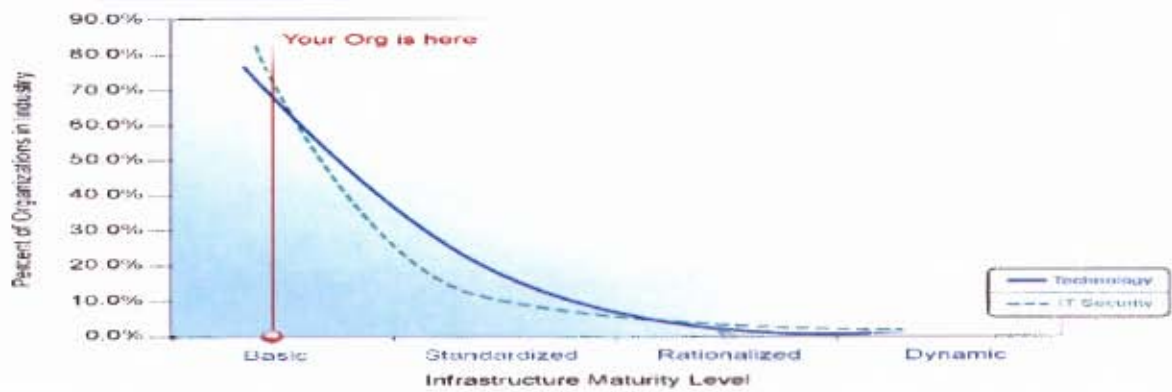
Industry: Financial Services



Industry: Government



Industry: Manufacturing



Attachment 8



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Microsoft Services WorkshopPLUS

Microsoft | Services
Premier Support

Strategic Enterprise Operations

Students will learn about and discuss IT operations challenges, available process frameworks, and standards.

The Strategic Enterprise Operations 3-day WorkshopPLUS course combines key elements of the Microsoft Operations Framework: Essentials and Microsoft Operations Framework: Changing Paradigm courses with real-world Microsoft Operations Consulting experience to produce a rich learning experience centered on improving Information Technology (IT) operational efficacy. Students will learn about and discuss IT operations challenges, available process frameworks and standards such as the IT Infrastructure Library (ITIL) and Microsoft Operations Framework (MOF), and to end services, the MOF Process Model, and risk, change, release, and configuration management.

A multi-round instructor-led operational simulation brings these concepts to life so that students understand how the Strategic Enterprise Operations course improves their IT strategies.

The workshop contains Level 300 content. Please review the target audience information, and contact your Microsoft Services representative to ensure that this workshop is appropriate to the student's experience and technical expertise.

WorkshopPLUS Benefits

- **Incoming Assessment...** to baseline knowledge. It is important for students to get feedback on how much they have learned during the WorkshopPLUS course. To accomplish that end, the Incoming Assessment measures what students know at the beginning of the course. The Assessment statement was developed by a team of subject matter experts at Microsoft.
- **Outgoing Assessment...** to measure knowledge transfer. Students like to know how much they learned as a result of the training. At the end of the WorkshopPLUS course, students compare their Incoming and Outgoing results. In addition, the instructor reviews the questions and discusses the answers in detail to ensure that students understand the concepts. (Note: Individual results of the Incoming and Outgoing Assessment are not provided to management.)
- **Action Planning session...** to take workshop learnings and apply them to the workplace. Applying new knowledge to the real world is key to getting the most value out of your training budget. The purpose of the Action Planning session is to identify key problems or proactive opportunities in your workplace – and then to use the skills learned in the course to develop real-world action plans.

Technical Highlights

- Understand Service Maps
- Explore the MOF Process Model, including:
 - Risk Management
 - Change Management
 - Release Management
- Configuration Management
- Experience the Talkerina operational simulation

people  ready

Target Audience

To ensure that the high-quality of knowledge transfers as expected to attendees of this three-day workshop, class size is limited to a maximum of 16 students who meet the following criteria:

- IT managers and/or directors charged with reducing costs and improving availability.
- IT professionals who seek to improve the operation of their systems.
- IT service delivery managers responsible to the business for the performance of a solution or system.
- Microsoft Operations Framework Essentials alumni seeking to take their MOF knowledge to the next level.

Syllabus

This workshop runs a FULL 3 days. Students should anticipate consistent start and end times for each day. Early departure on any day is not recommended.

Incoming Assessment

Students take a 25-question quiz that provides a baseline of their knowledge.

Module 1: Challenges Facing IT Operations

Explore insights into the IT operations challenges that the IT industry faces by using examples from the experiences of Microsoft. Learn how to discover and document IT challenges.

Talktrack:

Round 1

Module 2: IT Service Management – Guidance and Standards

Review ITIL, MOF, and BS15000/ISO20000.

Module 3: Understanding an End-to-End Service

Understand the concept of an end-to-end service, review the Service Map as a valuable graphical depiction of an end-to-end service, and learn how to build a Service Map.

Module 4: MOF Process Model

Review the MOF Process Model, including the quadrants, their associated operations management reviews (OMRs), and service management functions (SMFs).

Talktrack:

Round 2

Module 5: Actualizing MOF to Customers

Understand how Microsoft IT (MSIT) used MOF to increase

service levels to internal customers and how Microsoft Services converted those lessons into consumable assistance for the external customers of Microsoft.

Module 6: Risk Management

Explore the MOF Risk Management Discipline and understand how to apply Risk Management techniques to assist with Availability Management.

Talktrack:

Round 3

Module 7: Change Management

Define change in the context of Change Management, review the basic sequence of steps in the process, and understand how emergency changes work in the Change Management process.

Module 8: Release Management

Examine the release life cycle concept in relation to the MOF Changing Quadrant and survey the Release Management process, including release process activities, the release readiness review (OMR), and the post implementation review.

Talktrack:

Round 4

Module 9: Configuration Management

Understand concepts involved in the Configuration Management setup process and configuration item (CI) sub-processes.

Talktrack:

Round 5

Outgoing Assessment

Students complete the quiz again and compare upcoming with Outgoing results to measure knowledge transfer.

Action Planning session

Students develop Action Plans to improve real-world situations and/or implement proactive measures.

Additional Information

This workshop is just one of many available from Microsoft Services.

For more information, contact your Technical Account Manager or Services representative.

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Data Sheet

MOF Operations Assessment

In today's ever-changing economy, enterprises are increasingly dependent on their IT systems.

Consequently, a typical enterprise faces rising vulnerability to system failures.

For executives, understanding their own IT operations is a crucial responsibility because of the potential for serious disruption to their enterprise.

According to industry analysts, 80 percent of unplanned downtime is due to failures related to people and process.

What can Microsoft do to improve an IT operational environment? By providing high-quality products and solutions, Microsoft ensures that customers use its technologies to their full capability. These solutions include guidance and services with regard to people and process.

Microsoft understands business complexities. It has spent thousands of hours building solutions that help organizations implement, deploy, and operate IT environments of all sizes and styles.

Microsoft Operations Frameworks

Achieving operational excellence depends on technological standards, operational processes, and the skill level of the people involved.

Microsoft® Operations Framework (MOF) provides guidelines on how to plan, deploy, and maintain IT operational processes in support of mission-critical service solutions.

It is a structured, yet flexible, approach based on:

- The IT Infrastructure Library (ITIL), which describes the processes and best practices necessary for the delivery of mission-critical service solutions
- ISO 15504, which provides a normalized approach to assessing process maturity
- Microsoft technology and experience

These adaptable standards offer organizations lasting value that will continue to grow.

MOF can help organizations accomplish the following:

- Operations assessment
- Process implementation
- Ongoing process improvements
- Process automation using Microsoft products

Operations Assessment Service Offering

The *Operations Assessment Service Offering* is part of the larger MOF approach that enables an operations staff to realize tangible benefits to existing or proposed operations, regardless of the size of the enterprise or its maturity level.

The service offering provides a comprehensive approach that:

- Helps IT managers assess the current state of their operational processes and maturity level.
- Compares these processes to industry-recommended standards and best practices.

Microsoft

Attachment 12

SCDOR Internet applications

SCBOS, SCBOSCMS

Scnetfile, ScnetfileMaint

Ewithholding, EwithholdingMaint, EwithholdingAdmin

Esales, ESalesMaint

DORBOS, DORBOSMaint

DOREPAY, DOREPAYMaint

ACH, ACHMaint

Penalty and Interest Calculator

Credit Card, Credit CardMaint

EDSR

Datasources

CMS SCGIMS-Dragnet-DOR

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Attachment 13

Desktop, Device, and Server Management

Basic to Standardized

You can get started today toward moving from Basic to Standardized.

Challenge	Focus	Benefit
Characteristics:	Next steps:	Value moving forward:
<ul style="list-style-type: none"> There are no desktop standards for hardware, operating systems, or applications Desktops are not centrally managed The IT organization is highly reactive, firefighting unpredictable issues. Software distribution is very expensive Peer-to-peer support leads to lower end user productivity The help desk call volume is high, and there are long resolution times due to inconsistent desktop states The help desk struggles to retain control over the infrastructure Service Level Agreements are not in place due to lack of infrastructure control, change management, and standardized procedures Mobile workers are not protected from virus exposure. There is also a lack of mobile application inventory and deployment support There is a concern over unauthorized access to sensitive data on mobile devices There are variable device policy settings with an inability to verify corporate security standards 	<ul style="list-style-type: none"> Implement an automated patch management solution Standardize your desktops by defining a set of standard desktop images Consolidate user operating systems to two versions Implement image-based operating system deployment technology Centrally manage network-connected mobile devices Deploy Windows XP Professional Service Pack 2 as your default desktop operating system 	<ul style="list-style-type: none"> Consistent desktop builds and experience throughout organization OS standardization reduces administration costs and increases user productivity Establishing H/W and S/W standards and lifecycle Faster, less expensive deployment Lower deployment cost per PC Desktop Security levels. Less risk of security threat Help desk call volume reduction and lower help desk costs More first level support success. Faster response times to incidents User confidence in help desk increases. Streamlined support processes Less user interruption and lower operational costs Monitoring services help simplify identification issues, streamline the process for determining the root cause of the problem By reducing the number of alerts, operations workers are able to respond more quickly and effectively to those that need attention Administrators can ensure data protection and compliance with corporate security policies, including ability to set password policies and remotely wipe devices Remote device management features help make provisioning and

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Desktop, Device, and Server Management Standardized to Rationalized

You can get started today toward moving from Standardized to Rationalized.

Challenge	Focus	Benefit
Characteristics:	Next steps:	Value moving forward:
<ul style="list-style-type: none"> Deployments are partially manual, and hardware is exposed to attacks because there is no process or tools in place to keep it updated Automation tools to aid in testing, deployment, and support of the desktop are not in use Inaccurate hardware and software inventory increases maintenance costs Application compatibility testing is not present Users require the help desk to deliver services on a request basis that could be automated with user provisioning The process of OEM integration does not exist. This requires on-site rebuilds of enterprise image pre-deployments Standard reference images are built from scratch Although users are protected from virus attacks on the corporate network, their machines are exposed to attacks while connected through public or home networks due to lack of a centrally controlled firewall running on the desktops There is a lack of protection from unauthorized mobile network access and limited security options for mobile e-mail 	<ul style="list-style-type: none"> Implement asset lifecycle management technologies for desktops Extend Standardized patch management processes and automation to servers Enhance security and availability of IT services to mobile devices Consolidate infrastructure by applying virtualization technologies to selected IT services Deploy Windows XP Professional Service Pack 2 and Microsoft Office 2003 as part of a desktop deployment refresh Install and refresh desktop images using zero touch technologies Implement a standard application compatibility testing process 	<ul style="list-style-type: none"> Mobile, secure, centrally managed desktop environment Increased ability to automate deployment of new desktops, desktop rebuilds, and user migrations Level of security on the desktop is increased and more effectively managed by IT The help desk shifts from reactive to proactive with faster response times A consistent desktop profile experience for roaming users, both on and off the network Less user downtime as hardware is kept up to date with latest patches and OS updates Defense-in-depth security measures widely deployed Automated testing is performed before deploying into production Automation for services that reduce costs and add consistency Security and stability of desktop and mobile environment is consistent both inside the corporate firewall as well as outside

References --

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Microsoft Softgrid Trial Guide -

<http://www.microsoft.com/downloads/details.aspx?FamilyId=AA787491-8D08-4D2F-8960-9E9F00226C7E&displaylang=en>

Thinstal install guide - <http://www.thinstall.com/help/ThinstallVS.pdf>

Application virtualization site - <http://www.virtuall.nl/>

Total cost of Security patches - download.microsoft.com/download/1/7/b/17b54d06-1550-4011-9253-9484f769fe9f/TCO_SPM_Wipro.pdf